Volume 93 Number 7

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

AMAZING is the extent to which the influence of NIRA has crept into the affairs of industry! Within the week every happening of noteworthy importance has been related closely to some phase of the recovery program directed from Washington.

While NRA staffmen were going over the steel code with fine-toothed combs (p. 11), iron and steel executives waited impatiently for authoritative word on the administration's next move. The longer the code hangs in midair, the more difficult will be the industry's task of holding to its single-price policy (p. 45) against the pressure of large tonnage customers. The awaited word came Thursday, in the form of an invitation to attend a conference at Washington Tuesday, Aug. 15, at which time differences among various interests will be ironed out.

Labor Issue Again Deferred, by Coal Truce

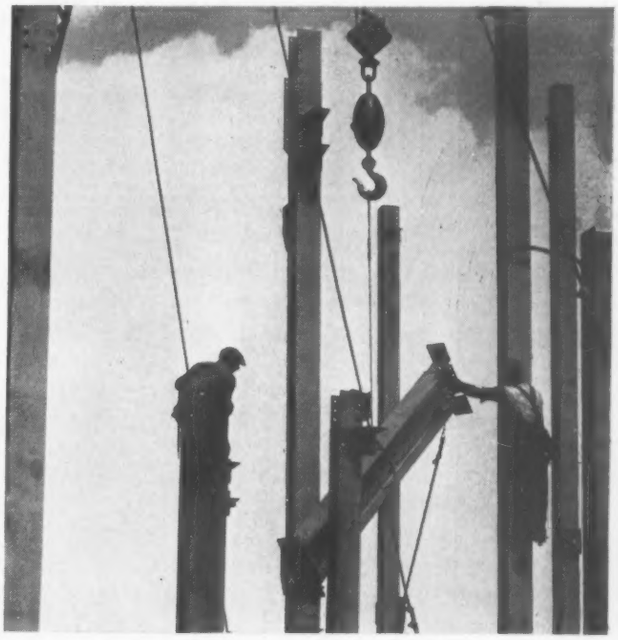
Calmed by a truce negotiated by General Johnson and made effective by the direct appeal of his aide, Edward McGrady (p. 15), bituminous coal miners returned to work on the eve of the coal code hearings. Thus, for the second time the final decision on the troublesome problem of labor relations has been postponed. The coal industry, with 27 codes and torn with competitive strife (p. 15), started Wednesday to run the gauntlet of a public code hearing. Laborites, communists, social workers, agitators, etc. wielded the paddles with practiced skill. Employers, more defiant than steel executives, stood their ground longer before bowing to the inevitable. Hearings on the automobile industry's code have been scheduled (p. 11) for Aug. 18.

Business Feels Effect of NRA Uncertainties

Uncertainties arising from NRA and PRA (President's re-employment agreement or "blanket code") have slowed business in certain lines. Machinery and equipment manufacturers (p. 23) report a freezing up of active inquiry. Simultaneously seasonal factors (p. 19) are affecting automotive output, but more moderately than usual. Unfilled orders of U. S. Steel (p. 14) dropped for the first time since March . . . Steelworks operations, which averaged 58.95 per cent of capacity in July (p. 14), when output was the largest in 37 months, last week held their ground at 54 per cent (p: 13). Confusion over NRA has not affected steel operations as violently as some other activities.

Price Control? Sniping at Steel Prices

Increasing complexities in the administration of the codes may force NRA into the difficult field of price control. Already commentators are complaining about the disparity of prices (p. 22), and some of them are sniping at steel prices. If the government's goal on prices is the 1926 level, iron and steel quotations can



This is the way steel should go—up in erection to keep mills humming and labor employed, up in price to insure producers a justified remuneration. Photo by H. Armstrong Roberts, Philadelphia

rise considerably before hitting the ceiling fixed by the administration . . . Code making is in full swing! Those who are not writing codes (p. 12) are attending hearings or waiting for NRA's decision on pacts already submitted.

Heat Treating Robots Toughen Car Wheels

Synchronization of heat treating equipment —heating furnace, quenching machines and drawing furnace—by means of automatic, precision controls is a potent factor in the successful operation of a new installation (p. 25) for the heat treatment of wrought steel car wheels. Operation of the quencher is interesting, embodying two patented disks between which the heated wheel is clamped and rotated, water being sprayed on the rim only. This method gives the desired hardness gradient through the wheel. Heating and drawing furnaces are of the rotary-hearth type. . . . Furnaces of another type, with gas burners controlled by the humidity, are used in a West Coast plant (p. 28) to condition warehouse atmosphere as a means of avoiding rust on sheet stocks.

Welding Marches in Progress Parade

If you have been to *A Century of Progress* in Chicago, no doubt you noticed the unusually clean appearance of the interior roof section of the General Motors building. The effect was achieved (p. 30) by substitution of welded beams, specially prepared, for the usual truss design. . . . Welding also provided an economical method for the fabrication of 12 large high-pressure hydraulic cylinders, 12 feet long and 2 feet in diameter, of 1¾-inch steel plate. All seams (p. 39) were fusion welded and X-ray inspected. . . . Valuable data concerning the absorption of gases in a weld have been obtained (p. 27) by research involving preparation of weld pads in a welding hood in which character of the atmosphere can be regulated.

Attention to Details Saves Dollars

Effective sealing of open-hearth furnace ends by means of panels of steel plate will improve and tend to stabilize operation of the furnace (p. 36) and will cut down infiltration or exfiltration of air and furnace gases. . . . 20 to 30 per cent reduction in fuel costs of forging furnaces is possible by the use of recuperators built of steel parts (p. 40), according to German investigators. . . . Elimination of shearing or forging operations in the fabrication of beveled-edge grader blades has been accomplished (p. 28) by an engineer associated with a western steel company. . . . Monel metal has "gone Hollywood," being used (p. 33) in reels on which film is wound as it comes from the developing tank . . . The first steel bridge in Ohio employing a "battle deck" floor (p. 20) was dedicated Aug. 5.

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of STEEL *or of its editors.*

Co-operation—a National Necessity

THERE are individuals and groups who, even in these trying times, try to lead men into the belief that there is no such thing as a "common interest" between management and men, and that as a consequence their only hope lies in independent organization, where they can try to help themselves through a policy of demanding their rights rather than through friendly consideration and co-operation with their co-workers.

Our nation stands today in a great emergency. Having been bled white by the excrutiating toll of a world wide depression, our national administration has planned the most gigantic scheme of co-operation ever to be conceived.

The administrators of the national industrial recovery act have themselves stated over and over again that their plans cannot succeed without the wholehearted co-operation of industry, of business of every kind, of capital and of labor. It is therefore evident that anything that tends to create misunderstanding, dissatisfaction with existing conditions, or to stir up conflict and dissension between groups who are and have been working happily together, is a crime against the nation.

In the light of these facts it is difficult to understand why our national administration should directly or indirectly countenance or permit any such proceeding on the part of any individual or of any group, while it is of necessity demanding the full co-operation of every one.

Prejudicial Activities To Be Deplored

Each community should, therefore, in its own interest call upon every loyal citizen to in every way possible discourage and discountenance the activities of any individual or of any group that attempts in any way to stir up the prejudices of men, to create dissension or to dampen or retard needed co-operation in any established business enterprise within its midst, during this national crisis.

As a matter of self preservation if good will and real co-operation were ever needed in every community and within every business organization we need them now.

Every industrial and commercial enterprise, large and small, has fought for its very existence during the tragic days of the past three years, and if it had not withstood the storm its contribution to employment would have been gone. Employers generally have at the same time made every effort to keep the largest possible number of men and women at work, at a very great cost to their respective enterprises.

With improvement in demand only recently begun, after a period of tragic inactivity, with the economic progress of the world still to be assured, the whole nation as well as industry itself needs the benefit of the most co-operative effort at recovery that every individual and every institution can make.

It is certainly no time for any group of professional organizers to take advantage of the situation in an attempt to promote their selfish interests.

GEO. M. VERITY,
Chairman of the Board,
The American Rolling Mill Co.
Middletown, O.

Steel Code Up Tuesday; Basing Points, Wages Chief Issues

SPOKESMEN for the iron and steel industry have been invited to attend a conference in Washington on Tuesday of this week to discuss questionable provisions in its code of fair competition. Presumably the meeting will afford a discussion of NRA's findings and conclusions, based upon its study of the code and of briefs filed concerning it.

It is believed that Secretary of Labor Perkins will attend the conference. Her presence would indicate that the question of hours and wages is one of the major problems to be ironed out before the code will be acceptable to the government.

Steel executives are of the opinion that the argument on wages will center upon the differentials between rates for the north and south. It also is expected that the subject of basing points will come in for extended discussion. In quarters well informed on NRA code practice, it is felt that the scheme of pricing provided in the code may develop into an important issue in connection with the acceptability of the code.

The question of labor relations is not expected to be brought up during the conference.

The steel industry has taken no action in regard to the code during the past week. The industry's latest move was on Friday, Aug. 4, when Robert P. Lamont, president of the American Iron and Steel institute, filed with the administration, replies to questions which had been asked by Chief Counsel Richberg during the first session of the code hearing on July 31. Until advised that a conference to discuss the code had been decided upon tentatively for early this week, heads of the principal steel companies and officers of the institute had had no word from the government since the adjournment of the hearing.

Probe Decument Thoroughly

In Washington the administration has been going over the steel code with extreme care. Two separate investigations have been conducted. R. W. Shannon, assistant to Deputy Administrator Kenneth M. Simpson, and his assistants are reviewing and digesting the testimony presented at the hearing and the briefs which were filed prior to the closing hour, 6:00 p.m., Tuesday, Aug. 1. Another group of investigators, under Dr. Alexander Sachs, chief of the division of economic research and planning, is evaluating statistical material.

General Johnson has been reluctant to talk about the code during the time it was being reviewed. Nevertheless, in a press conference last Tuesday, he replied to a number of questions pertaining to the steel industry. Somebody referred to the statement credited to Robert P. Lamont to the effect that the steel industry had gone as far as it could in the code proposed. General Johnson stated that unless the steel industry signs either the President's agreement or a substitute for that, it cannot use the blue eagle. He also stated during the conference that if the steel industry does not approve the code, NRA will have to write one and will enforce it.

Waves Boycott Threat

While General Johnson did not use the word "boycott," he intimated that in his opinion, if an industry does not sign a code and thereby fails to get a blue eagle, the public will not buy its products. When the statement was made that items such as steel are not bought by the general public, the General stated that he did not think the government would buy its steel from the industry if it does not sign a code. This point was made more definite later when President Roosevelt issued an executive order requiring that domestic supplies purchased under a federal government contract shall be produced under the terms of the recovery program. This order, of course, would apply to steel.

It is said on good authority that some of the sharp statements issued by Washington in connection with the iron and steel industry should not be taken at face value. It is explained that the recovery administrators, anxious to speed up the presentation of codes, are wielding the big stick with unusual vigor at this time in the hope that most of the important codes may be in the fold before Labor day.

At least part of the pungent language used to emphasize what will happen to recalcitrant individuals or companies is for "public consumption." It is realized in Washington, and by NRA, that there is a limit to how far industries can go in meeting the demands thrust upon them. The blasts, many of which are not directed specifically to any one industry, should not be taken too seriously by those who have submitted codes.

During the week activity on codes reached the highest point attained thus far in the short but hectic life of NRA. While leaders of some of the large basic industries were attending hearings or awaiting decisions in regard to codes already submitted, the representatives of hundreds of other industries were hastening to perfect their codes for submission to the government.

The bituminous coal industry held the spotlight during most of the week—first, through NRA's activity in quieting labor difficulties in western Pennsylvania and from Wednesday on, in the hearings of the 27 bituminous coal codes.

The problem of labor relations, which was divorced from the steel code hearings on July 31 by the simple expedient of brasing Section 2 of Article IV, was involved in the strikes in western Pennsylvania. A more immediate factor was the attempt of unionization on one hand and the activity of communistic agitators on the other. In calling a truce, pending the time when a suitable bituminous coal code is approved, President Roosevelt, through the agency of NRA, again postponed the problem of labor conflict for a decision at a later time and in another way.

In many ways the coal hearing resembled the steel hearing. Deputy Kenneth M. Simpson again presided and Chief Counsel Donald Richberg laid down the rules of procedure and kept the arguments within the prescribed channels. Spokesmen for the government, labor and social organizations presented their arguments much as they did at the time of the steel hearing. Communists and other radical agitators were present and performed much as they did when the steel industry was the target for their accusations.

The chief difference in the two hearings lay in the fact that whereas steel appeared as a single unit with but one spokesman, King Coal was represented by scores of factions of employers. Undoubtedly the extent to which internal strife is rending this industry, justified General Johnson in his statement that the coal industry presented the hardest problem which has confronted NRA.

Automobile Code Up Friday

The oil industry, which has been operating under a temporary wage and hour agreement, will study a new code which will be ready early this week. It probably will provide machinery for controlling production.

The code for the automobile industry, of which little has been heard since General Johnson carried it back to Washington in his coat pocket, now is scheduled for hearing on Friday of this week.

News of other codes, affecting the interests of the iron and steel and allied industries is presented on the following pages.

Fabricators of Metal Products Organize To Consider Code

REPRESENTATIVES of more than 60 trade associations interested in finished or component metal products met Thursday in Washington to formulate an alliance whereby NRA may facilitate hearings on a basic code affecting labor policies of a wide variety of interests. The groups represented ranged from gears, screw machine products, forged tools, metal trim, sheet metal and pressed metal to saw machines, steel barrels and bird cages.

Phillip Gott, trade association manager, chamber of commerce of the United States, called the meeting to order and H. O. King, deputy administrator, NRA, was present during the sessions to advise on matters relating to policy and procedure, and to explain the administration's aims.

An early expression affirmed the fact that the government does not propose to assign industries into groups or classifications where they do not belong. However, to expedite matters an alliance of interests such as was represented by the metal products group is welcomed. The paramount interest of the administration is re-employment and more wages, quickly.

Pick Officers, Committees

It was decided by the meeting that the new organization should be a voluntary association of various trade groups set up primarily to assist the administration in facilitating its program. H. S. Kimball, Hazett Metals Inc., New York, and formerly vice president, Remington Arms Co., was elected temporary chairman. Committees were appointed to formulate a statement of policy to be covered by a constitution and by-laws and to present a code. A request that the new organization be headed or sponsored by the chamber of commerce was negatived by the fact that some permanent organization is necessary to administer any basic code which later may be presented.

The committee on constitution and by-laws reported recommending that the name of the new organization should be the Metal Products Fabricators' federation, that the headquarters should be in Washington, that membership should be available to associations and individuals who because there is no trade association in existence in their industry, could have no other connection or affiliation. The scope of the new federation was defined briefly as follows:

> The Metal Products Fabricators' federation embraces those manufacturers and/or associations of manufacturers who make for use or sale metal products which are beyond the point of finished mill shapes or foundry operations.

An acting board of directors of 18 members was chosen and the powers of the federation were defined as representing all the member associations and individuals before the government in matters relating to labor and hours, the policing of codes and the collection of statistics. Supplementary codes embracing the requirements of individual associations exclusive of questions of the employment of men, a membership vote on the basis of one for each 100 employes and the assessment of dues upon a similar basis will be provided.

Among those chosen as the active board of directors during the organization were the following: Stewart J. Swenson, Aluminum Wares association; John M. Byrne, Bright Wire Goods Manufacturers; Irving S. Paull, the Chain institute and others; A. M. Ferry, Flashlight and Dry Battery Manufacturers association; D. S. Hunter, Galvanized Ware Manufacturers council, Steel Barrel Manufacturers council and others; G. B. Durell, Chain Tool and Implement association; A. E. Payson, Insulated Container association; W. D. Disston, Saw Manufacturers association; Arthur E. Swanson, Screw Machine Products association; H. D. North, U. S. Cap Screw Service bureau; R. E. Pritchard, the Stanley Works; and H. S. Kimball.

The board convened and elected H. D. North permanent chairman and proceeded to consider a code presented by E. A. Thatcher, United Screw and Bolt Corp., chairman of the code committee.

NRA Modifies PRA Terms For Zinc Industries

Modification of the President's reemployment agreement for the zinc industry has been authorized by General Hugh S. Johnson.

The modified agreement fixes the following minimum rates of pay in the mining division; 35 cents per hour in the eastern and northwestern districts, and 30 cents per hour in the southern Mississippi valley and southwestern districts. In the prime western smelting division the minimum is established at 30 cents an hour for unskilled labor and at the rate of $2.75 per shift of not more than 8 hours, for all other labor.

In the high grade zinc division the minimum rate is fixed at 39 cents an hour. In the secondary zinc division the minimum per hour is set at 35 cents, except for cleaners and outside labor, fixed at 30 cents an hour.

Minimum rates in the rolled zinc division of the industry are the same as in the secondary zinc division. In the zinc oxide and lithopone divisions the minimum wage will be at the rate of 35 cents an hour.

In the sulphuric acid division the minimum rate is 35 cents with 30 cents set for cleaners and outside labor.

Founders Meet; File One of Four Codes

THE Founders' Council, co-ordinating agency of the four major branches of the foundry industry and representing gray iron, steel, malleable and nonferrous plants met in Washington, Aug. 9. F. A. Lorenz Jr., American Steel Foundries, Chicago, who was elected chairman of the council, reported the formal filing of a code by the Steel Founders' Society of America representing 90 per cent of the productive capacity of the steel foundry industry.

Discussion with NRA clarified points of doubt and provided basis for the early completion of the three other industry codes. The malleable code, under direction of the Malleable Founders' society, has been accepted by the membership. A meeting of the committee of 12 representing the eastern, central and western groups was held Friday, Aug. 11, at Dayton, O. The gray iron code has been approved by the steering committee and is being presented for approval to 17 district meetings in various sections of the country last week and this week.

The Nonferrous Founders' Association for Industrial Recovery is holding 10 district meetings between Aug. 9 and 14 to approve a code for early presentation.

The Founders' Council has co-ordinated various provisions of the four codes, particularly those relating to hours and wages. All differing points have been reconciled and a united front in support of the industrial recovery plan is offered by the foundry industry. An estimate of the scope and importance of the industry can be gained from the fact that the four major groups previously mentioned represent over 4000 plants employing 318,000 men and

representing a total capital investment of over $805,000,000.

Those who attended the council meeting Wednesday were: F. A. Lorenz Jr., chairman executive committee Steel Founders' Society of America; T. H. Harvey, Ohio Steel Foundry Co., Lima, O., president Steel Founders' Society of America; Col. Merrill G. Baker, executive vice president Steel Founders' Society of America; R. R. Fauntleroy, Moline Malleable Iron Co., St. Charles, Ill., president Malleable Founders' Society; Carl C. Gibbs, National Malleable & Steel Casting Co., Cleveland, director Malleable Founders' society; Walter Seelbach, Forest City Foundries Co., president Gray Iron Industry committee; N. K. B. Patch, Lumen Bearing Co., Buffalo, president Nonferrous Founders' Society for Industrial Recovery; Dan M. Avey, *The Foundry*, Cleveland, secretary of the Founders' Council.

Manganese Producers Meet, Submit Code To NRA

Meetings were held at Washington last week by the manganese industry at which producers from 20 states were represented when a proposed code was drawn up and presented to NRA. The code provides minimum wages of 35c per hour in the western and northern states and 30c per hour in the southern states, and for a maximum 40-hour work week.

The meeting adopted a resolution in which it was declared that "the manganese industry hereby expresses its desire to co-operate to the fullest possible extent with the President of the United States and to assist him in his endeavor to bring into full force and effect, as quickly as possible, the beneficial effects of the national recovery act."

Work on Trucking Code

Completion and presentation of a code for the highway transport industry will be accomplished before the end of August according to the American Highway Freight association. Those who are working on this code believe that its approval by the NRA will mean the addition of half a million employes to the payrolls of this industry.

Ohio Jobbers Elect

Northern Ohio chapter of the American Steel Warehouse association, recently organized at Cleveland, has elected Ray Love of the Betz-Pierce Co., Cleveland, president and Fred S. Doran secretary. About 50 distributors of steel products attended the organization session.

Wholesale Hardware Code Is Submitted for Adoption

Under the sponsorship of the National Hardware Association of the United States a code of fair competition for the wholesale hardware industry has been drafted and presented for approval to NRA. Copies of the proposed code have been sent to wholesale hardware dealers with the request that it be studied and adopted upon approval by the government administration.

At a conference held in Washington last week, presidents, secretaries and chairmen of the code committees of various wholesale associations discussed with the NRA authorities questions of hours, wages and other details necessary for the acceptance of a code.

The code, consisting of 21 articles, is designed to conform to the requirements of the NIRA. NRA has been petitioned to permit the trade to operate under this code at least insofar as the labor provisions are concerned, instead of under the PRA, or so-called blanket code for all industry.

The labor provision of the proposed hardware code grants employes the right to organize and bargain collectively, eliminates child labor and fixes maximum hours of labor and minimum wages.

Other provisions of the code have to do with monopolies, fair competition, selling below cost, secret rebates, commercial bribery, misbranding, substitutions, breach of contract, slandering competitors, enticement of employes, resale price maintenance, protection of retailers and territorial conditions.

Foundry Equipment Makers Adopt Industrial Code

At a meeting of the Foundry Equipment Manufacturers association in Cleveland, Aug. 5, an industrial code of fair competition was adopted. Forty executives representing 23 companies attended.

The association has designated J. R. Avey executive secretary, with offices at 1213 West Third street, to handle matters relating to the industry under NIRA.

Scrap Metal Dealers Elect

Harry Braman, Charles Braman & Son, Chicago, was elected president of the National Scrap Metal Dealers association, at a meeting held Aug. 9, in New York. The association was formed recently to prepare a code for the dealers in nonferrous scrap metals. Chapters have been formed in New York, New England, Philadelphia and other centers. Other officers elected include M. Goldfine, Western Metal Co., Chicago, vice-president and Morris Cohen, L. S. Cohen & Co., Chicago, secretary-treasurer.

Members of MAPI Urged To Act on Codes Promptly

Following several weeks of exhaustive study, including conferences with NRA officials, the code prepared by the code committee of the Machine and Allied Products institute, recently was approved by its executive committee.

Members of MAPI who desire to adopt the complete suggested code were advised in a recent bulletin to do so as promptly as possible, inasmuch as the first codes of member organizations of the institute were to be filed in Washington last week. Members requiring special sections or deviations from the general code were urged to give this matter prompt consideration so that they may complete their codes and thus enable the institute to file them promptly.

Officers of MAPI are John W. O'Leary, president; H. C. Beaver, vice president; Paul C. De Wolf secretary and Col. Robert H. Morse, treasurer.

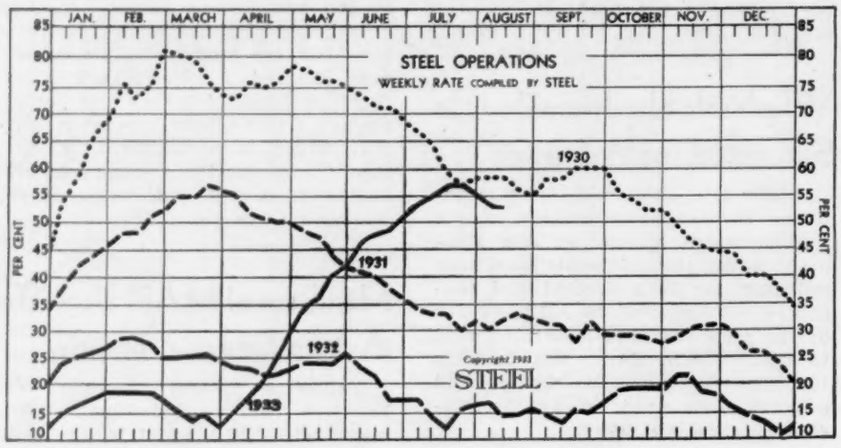
Steel Warehouse Code Is Adopted; Changes Minor

Members of the American Steel Warehouse association adopted a code of fair practice at a meeting held in the Commodore hotel, New York, Aug. 11. The code was to be filed with NRA officials in Washington on Aug. 12.

Only a few minor changes were made in the document as tentatively drafted, which was summarized on page 66 of the Aug. 7 issue of STEEL. The principal change was in the time provided for making price schedules effective after they have been filed with the association. The original draft provided for 10 days' notice; in the code adopted Friday 5 days' notice is stipulated.

Meet on Fabricators Code

American Institute of Steel Fabricators will conduct a general meeting of steel fabricators at Hotel Schenley, Pittsburgh, Wednesday, Aug. 16, to perfect the code which has been drafted for the steel fabricating industry.



Rate of Steelmaking Steadier, Holds at 54% of Capacity

WITH Chicago, Pittsburgh, Cleveland and Birmingham districts remaining unchanged, and fluctuations in other districts canceling out, steelworks operations for the week ending Aug. 12 remain at 54 per cent of capacity. Gains of 1 point at Buffalo, 7 points in New England and a stronger situation in parts of Ohio, offset a loss of 1½ points in Youngstown and 1 point in eastern Pennsylvania open-hearth activity.

Pittsburgh

Steel production was 48 per cent of this district's capacity last week, unchanged from the week previous. The outlook for this week is for little deviation.

The leading producer ran through last week at 50 per cent of capacity but some of the smaller independents forced this rate slightly lower. Blast furnace activity is at 46 per cent and of 53 stacks owned by steelworks here, 23 are blowing, 15 operated by subsidiaries of the United States Steel Corp., six by Jones & Laughlin Steel Corp. and one each by Pittsburgh Steel Co. and Pittsburgh Crucible Steel Co. Not included in this blast furnace compilation but in an adjacent district are four out of seven blast furnaces active at Bethlehem Steel Co.'s Johnstown, Pa., division.

Chicago

Ingot production was unchanged at 54 per cent the past week and although shipments are moderately heavier than incoming business, backlogs assure a continuation of steelmaking schedules around recent levels during the remainder of August. Thirteen of the district's 36 steelworks blast furnaces and one merchant furnace are in blast.

Youngstown

Steel plant operation last week was at 64 per cent of capacity, 1½ points lower than the preceding week. It is expected the rate this week will be 63 to 64 per cent, with 51 of 83 open hearths and 15 of 31 blast furnaces active.

Cleveland

Steel ingot production here for the week ended Aug. 12 held at 79 per cent, unchanged from the preceding week. National Tube Co., Lorain, O., lighted one more open hearth and had all of its 12 units in operation, but Otis Steel Co. here dropped from seven to six. Corrigan, McKinney Steel Co. operated 13.

Buffalo

Buffalo district steelworks will continue a 58 per cent operating rate this week. No immediate change is in prospect although there has been a slight falling off in specifications and unfilled tonnage is less. Last week found 21 open hearths in production, the same as the week before.

Wheeling, W. Va.

With 27 and 28 open hearths on alternately out of 37 in this district, steel production continued unchanged at approximately 80 per cent of rate of capacity. For this week, no change is expected from the 80 per cent level.

Birmingham, Ala.

Estimate of 55 per cent, based on steel ingot output, is given as to the steelmaking pace of the district, Tennessee Coal, Iron & Railroad Co. having eight and Gulf States Steel Co. five open-hearth furnaces in.

New England

Steel operating rate last week was 83 per cent of capacity, a gain of seven points. One works again has touched 100 per cent while others are unchanged. Nine open hearths are producing steel.

Eastern Pennsylvania

Steelmaking operations on the eastern seaboard are down approximately a point to 42 to 43 per cent of capacity. Pronounced recession in new business recently may lead to further drop this month.

Operating Rate of the Steel Industry, by Weeks

All figures except monthly open-hearth and bessemer totals of American Iron and Steel institute are percentages, based on reports from Pittsburgh, Chicago, Youngstown, eastern Pennsylvania, Cleveland, Birmingham, Buffalo, Wheeling, New England, St. Louis, Lorain, Detroit districts. Weeks end Saturday. STEEL's weekly estimates take into account only actual available capacity, which is less than Institute's total.

1932	1st Week	2nd Week	3rd Week	4th Week	5th Week	STEEL's Average	Institute's Monthly Total tons	Institute's Monthly Average
Jan.....	22	25	26	27	28.5	25.7	1,484,991	26.41
Feb.....	28.5	27	25	25	....	26.4	1,481,253	27.40
March....	25	25.5	24.5	23	....	24.5	1,433,337	24.55
April.....	23	22	22	23	24	22.8	1,259,629	22.40
May.....	24	24	25.5	23	....	24.1	1,125,243	20.01
June.....	21	17	17	17	....	18.0	912,757	16.23
July.....	14.5	12	15.5	16.5	16.5	15.0	806,722	14.92
Aug.....	14.5	14.5	15.5	14.5	....	14.7	846,730	14.50
Sept.....	13.5	15.5	15	17	....	15.3	991,858	17.64
Oct.....	18	19	19.5	19.5	19.5	19.1	1,087,058	19.33
Nov.....	21	21	19	17.5	....	19.6	1,032,221	18.36
Dec.....	16	15	14	12	13	14.0	861,034	15.31
1933								
Jan.....	15.5	17	18	19	....	17.4	1,030,075	18.23
Feb.....	19	19	19	17	....	18.5	1,086,867	20.83
March....	15	13.5	15	14	15.5	14.6	909,886	15.50
April.....	17.5	20.5	25	29	....	23.0	1,362,856	25.08
May.....	33	36	40	43	....	38.0	2,001,991	34.11
June.....	47	48	49	51	54	49.8	2,597,517	45.96
July.....	55	57	57	55	....	55.8	3,203,810	58.95
August....	54	54	..	..	....	....	.....	.....

WINDOWS OF WASHINGTON

WASHINGTON

THE blue eagle has sharp claws and will scream if provoked. No other interpretation can be made of the hard-boiled statements which have emanated from NRA headquarters during the last few days.

General Johnson has been emphatic in stating what will happen to interests who do not sign a code. Only code signers can use the blue bird, declares the General. Asked what will happen when an industry does not sign a code and does not get a blue eagle, the chief administrator said that the people simply will not patronize that industry. Support of this statement was forthcoming Thursday when President Roosevelt issued an executive order requiring that all domestic supplies purchased under a federal government contract shall be produced under the terms of the recovery program.

On Friday, General Johnson discussed the machinery for handling violations of codes which have been approved and adopted. It is the administrator's plan to have from one to three members of his organization sitting with each trade association. These members will not have the power to vote, but will be in a position to observe the co-operation, or lack of it, of members participating in the codes.

In cases where codes are violated, the blue eagle will be withdrawn from the offending companies and this, to quote General Johnson directly, will be "a sentence of economic death."

Sentence of Economic Death

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What Did McGrady Offer?

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Talking To Make Hell Cooler

HEARINGS on the bituminous coal codes are much more lively than the steel session. Twenty-seven codes instead of a single code are involved. Whereas the steel industry withdrew its statement in regard to employe representation plans, the sponsor of at least one coal code refused to eliminate its reference to this policy of labor relations.

Importance of labor problems in connection with the coal codes was heightened by the flare-up of strike difficulties in western Pennsylvania. General Johnson's representative, Edward F. McGrady, declared in his appeal to Fayette county miners, that the meeting in Uniontown on Tuesday morning was "a forerunner of a great drama that is being enacted in Washington beginning tomorrow." He was referring to the first-day sessions of the coal code hearings.

Examination of the record of Mr. McGrady's remarks at Uniontown disclosed no promises to the miners beyond statements which had already been issued by President Roosevelt and General Johnson. Nevertheless it is felt in some quarters that the strikers gained the impression that Mr. McGrady assured them that President Roosevelt would abolish the employe representation plan. At least one news service reported this as one of the reasons why the strikers returned to work.

Apparently the nearest McGrady came to referring directly to representation plans, was when he read Section 7a of NIRA and told the men that "it promises collective bargaining by unions of their own choosing." He said no worker need join a company organization to get a job or hold a job. This is no more than what General Johnson has stated repeatedly on numerous occasions.

It is no secret that the bituminous coal strike stirred up considerable bitterness. The refusal of mine operators to discuss matters with union heads irked the chief administrator and prompted him to say during a talk in Harrisburg, "I would talk with the devil himself if I thought it would make hell any cooler."

After the smoke of battle had cleared away it was apparent that NRA, in stopping hostilities in Fayette county, simply had arranged a truce pending the time when a suitable code for the bituminous industry can be promulgated. Simultaneously it created an arbitration board, headed by Senator Robert F. Wagner of New York. Its members are: William Green, president, American Federation of Labor; John L. Lewis, president, United Mine Workers; and Dr. Leo Wolman, chairman, NRA labor advisory board, representing labor; and Walter C. Teagle, president, Standard Oil Co. of New Jersey; Gerard Swope, president, General Electric Co.; and Louis E. Kirstein, Boston merchant, the latter three representing employers.

INDUSTRY may as well become reconciled to "planning committees" for the duration of NRA, for General Johnson is unequivocal in declaring that no trade codes have been approved without provision for such a committee, and none will be.

These committees in effect provide outside representation for every major industry. In iron and steel it will be the equivalent of three outside directors on the board of the American Iron and Steel institute.

A representative of labor, a representative of General Johnson and a representative for what is broadly termed consumers will comprise this committee. Since the American Federation of Labor believes that iron and steel workers should be lodged within the Amalgamated Association of Iron, Steel and Tin Workers, M. F. Tighe, its president, may be the labor representative sitting with the institute.

These committees will have no vote,

thereby freeing General Johnson's hands for action if a report of adverse policy is made.

Organized labor, incidentally, has its own planning committee. A representative of the important unions in the metal trades department of the American Federation, for example, has been called to Washington, and several times weekly meetings are held to decide matters of policy.

It still is the intention of the American Federation to enroll members of steel, rubber and automobile plants, to cite three major industries, in so-called federal unions. Eventually the electricians, machinists, molders and other tradesmen will be segregated in craft unions, but the initial effort is to blanket all employes of one plant in one body.

IF THE dollar becomes a commodity dollar, as many economic experts close to the administration are urging and toward which the President appears to be inclining, the bureau of labor statistics index of wholesale prices of commodities will be an important, if not a decisive factor.

In the compilation of this index, iron and steel is well represented; in fact, there are few products that are omitted. These products are weighted according to the volume of production. At present the iron and steel group of the bureau lists the following:

Angle bars; augers; axes; bar iron, refined and common; concrete, merchant, sheet and cold-finished bars; steel barrels; rerolling billets; boiler tubes; machine, plow, stove and track bolts; butts; sanitary cans; malleable castings; chisels; files; carpenters' hammers; hatchets; corn knives; door knobs; mortise locks; wire nails; bessemer and nonbessemer Mesabi iron ore; basic and bessemer pig iron at Pittsburgh; ferromanganese; spiegeleisen; Pittsburgh and Birmingham foundry iron; malleable iron; cast, black-steel and galvanized steel pipe; jack planes; plates; rails; rivets; wire rods; crosscut and hand saws; scrap steel at Chicago; box annealed, autobody and galvanized sheets; skelp; track spikes; strip, structural steel; tin and terne plate; tie plates; vises; annealed, barbed, galvanized and woven fencing; and wood screws.

FEW government agencies have enjoyed such a renaissance as the department of commerce, under Secretary Roper.

The pride of Herbert Hoover when he was secretary of commerce under Presidents Harding and Coolidge, he further enlarged it when he was made President.

Obviously it became a target when administrations changed in March. It offered the greatest possibilities for deep retrenchment. With the veering toward nationalistic policies its foreign trade activities came under fresh fire.

One of President Roosevelt's early quips in Washington was that he had finally been able to drive completely around the department's new building. Occupied on Jan. 1, 1932, the building promised to become a white elephant. It covers three city blocks, contains 27,159,045 cubic feet, is 1050 feet long by 325 feet wide by 7 stories high, its floor space is 1,605,066 square feet, its rooms number 3311.

As always is the case, incoming secretaries are enthusiastic for economy, but given a few weeks and they become jealous for their department and increasingly loath to part with any of it. So the commodity divisions in general have been retained, including the iron and steel division under Luther Becker.

The new chief of the bureau of foreign and domestic commerce—Dr. Willard L. Thorp, professor of economics at Amherst college since 1926—declares it his policy to continue the established functions of the bureau in the promotion of trade at home and abroad, which is another veering toward orthodoxy.

Housing NRA, the commerce building has become the busiest place in Washington. The long-term planning committee set up by Secretary Roper is believed to have great possibilities. Thus far the transfer of some of its functions to private agencies has made the bureau of standards the hardest hit of any department of commerce division.

Recognizing that Secretary Roper has grown considerably in his office, Washington chalks up only one major error—that of closing 21 out of 53 foreign offices and ordering officials and their families to sever all personal and family ties in a week in order to obtain free transportation back to the States.

MEMBERS of the consumers' advisory board of NRA undertook to persuade at least one important railroad executive to enter objections to the price of steel rails during the course of the hearing on the steel code, but unsuccessfully. . . . This is General Johnson's definition of the open shop: "An open shop is a place where any man who is competent and whose services are desired will be employed regardless of whether or not he belongs to a union." . . . Deputy Administrator Simpson, of the International Chromium Process Corp., has probably the stiffest assignments of any of the NRA staff. He is handling codes on coal and coke, oil and allied products, all nonferrous metals and the iron and steel classification under which come blast furnaces, castings, forgings, foundries, rolling mills, iron and steel, iron ore, other products not classified, ornamental iron and steel, scrap metal, sheet metal, steel tubing, structural iron and steel and wire. . . . Many government employes thought themselves secure when former President Hoover "blanketed" them into civil service, but it has proved equally easy for President Roosevelt to remove the blanket, and now they are subject to forthwith dismissal. . . . Federal workers handling records of reduction in cotton acreage are working 49 hours a week.

NRA Chief Recites Fable To Shock Recalcitrants

GENERAL JOHNSON seldom permits a day to pass by without hurling a threat at recalcitrant employers or employes. The following story, from a recent address before the Pennsylvania chamber of commerce at Harrisburg, is typical of the manner in which he is using gloved fist.

Once there was a very poor farmer, plowing a field with an ox and a mule. In the midst of furrow the ox had an idea. He said to himself I don't need to go on pulling together. So he laid down and chewed his cud—he would not get up and he would not pull. The field had to be plowed.

So the farmer got into the yoke with the mule. The ox ambled home and ate his way. At sundown the mule came home tired, and worn out and the ox was rested and talkative. He asked the mule:

"What did the farmer say?"

"Nothing—he just pulled on together with me."

"Didn't he say anything?"

"Nope."

"Didn't he even mention my name?"

"Nope."—and then the mule remembered—"Oh, yes," said the mule. "A man drove along in a buckboard and the farmer went out to the fence and borrowed a chew of tobacco. Remember now that he did mention your name."

"Who was the man?" asked the ox.

"That was the butcher."

"Now I don't know enough about this quarrel," declared the General, "to say who is the mule and who is the ox in this story. But I know that the field is not being plowed. I know the farmer is the long suffering American people and I know that the butcher is the public spirit and opinion that is awake all over this land at the sound of the voice of Franklin Roosevelt and God help the man or group of men that stands against his drive on this depression."

Price Rally Follows Swifter On Production Than in 1922

IRON and steel price recovery now appears much closer on the heels of the upswing in production than it was in the depression of 1921-22, though moving in a narrower range.

A decade ago, iron and steel manufacturers had to wait more than a half year from the time production began to climb out of a rut until prices stopped going down. Prices were much higher than now, which in a measure explains the persistency of that slide.

This time prices responded almost immediately to the increase in production, and have been moving up with it steadily month by month. This reaction is one of the outstanding features of the movement of prices and production in 1932-33, compared with 1921-22.

Two Recessions in Ingot Rate

In 1921, daily average steel ingot output hit bottom in July, and then rose for four consecutive months. December brought the usual seasonal recession. Beginning another advance in January, 1922, ingot output increased steadily until July. August witnessed still further decline, but thereafter there was a steady ascent through the remainer of the year, when the country realized it was out of the depression.

Prices did not run a similar course, as they did not reach their lowest point until February, 1922—seven months after the low in production.

In July, 1921, STEEL's iron and steel price composite was $38.10; by September it had dropped to $35.30; and in October it advanced to $35.40. It resumed the downward course in November. This movement did not halt until February, 1922. March showed a barely perceptible improvement at $32.90.

In April, 1922, the composite advanced to $34.40, and continued to rise each month thereafter until September, when it reached $43.70, recovering all the ground lost in the preceding 12 months.

Present Trends Contrasted

In the present depression period, daily average ingot output reached its lowest point in August, 1932. From then on it continued to increase until December. Production in November reached 39,701 gross tons; in December it fell to 33,117 tons. Another rally began with 1933, only to be followed by a relapse to 33,699 tons in March, the low for this year.

In each of the four months since March production has risen steadily, with 99,904 tons daily average for June, and daily rate of 128,152 tons for July.

Prices in 1932 showed only a feeble response to the improvement in production the latter part of the year. They coasted downward all through 1932 until August, when STEEL's composite reached $29.32, average for that month. But instead of continuing downward, the composite remained at this same level through September and October, prices showing a tendency to stiffen with the improvement in demand.

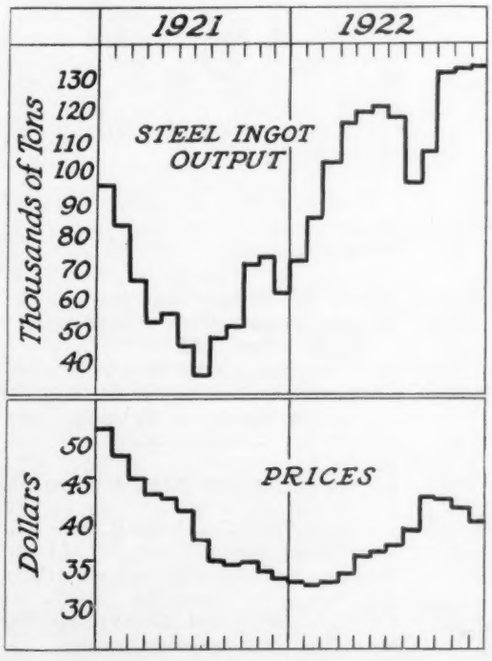
In November the price composite again fell off, continuing downward through December, 1932, and January and February, 1933. In April this year it was at the bottom of the decline, and has moved up each month since then.

April started the rise in ingot production; May began the upward movement in prices. The composite for April this year was $28.16, the lowest point reached in this depression; for February, 1922—the bottom of that depression—it was $32.80.

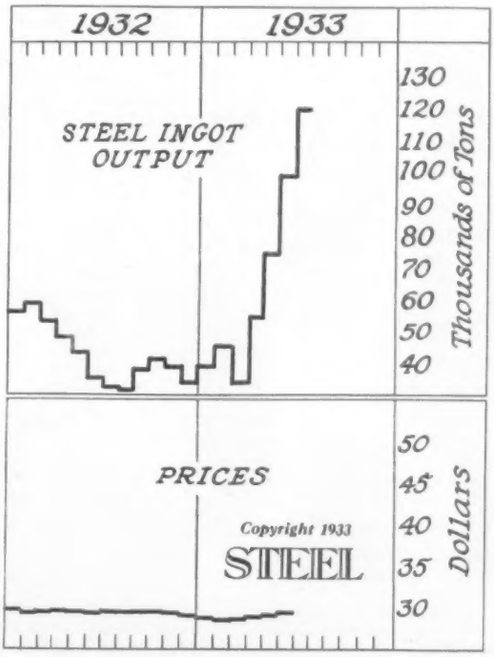
The liquidation ten years ago was much sharper, as in 12 months the composite fell from $51.90 to $32.80; while this time it was reduced only from $29.98—the peak of 1932—to $28.16, the low for 1933. It was at this point that the new national administration began its drive to check the downward drift of all commodity prices—prices that it declared ruinous to American industry.

G. E. Bookings Rise

General Electric Co., Schenectady, N. Y., booked in the second quarter orders totaling $35,539,858, an increase of 1 per cent over the $35,304,070 in the corresponding quarter of 1932. Profit available for common stock in the second quarter was $2,471,030, equivalent to 9 cents a share, slightly less than the quarterly dividend of 10 cents payable July 25.



A COMPARISON of price and production trends in 1921-1923 and 1932-1933. The upper lines in both illustrations represent daily average steel ingot output for the respective months; lower lines, STEEL's iron and steel price composites. While it was seven months after production reached its low point in 1921 before prices showed a definite upward trend, this year prices started upward consistently one month after steel production began to increase, though moving in a much narrower range



Ingot Output, Up 28 Per Cent, Is Largest Since June, 1930

STEEL ingot production in July was 28.27 per cent heavier than in June, according to statistics of the American Iron and Steel institute. The rate of production and total output are the largest since June, 1930. The rate of increase in June over May was 34 per cent, the lessened gain in July showing a slight flattening of the upward curve. The continuation of an upward movement in ingot production at midsummer is contrary to the usual course, as in practically every preceding year a slight decrease has been registered in June and July.

The daily rate in July was 128,152 gross tons, compared with 99,904 gross tons in June; total production in June was 3,203,810 gross tons, compared with 2,597,519 tons in May. Rate of operation in July was 58.95 per cent of capacity, in June, 45.96 per cent of capacity.

Recent months, which have seen the recovery of tonnage, have brought the cumulative total for 1933 well above the corresponding period in 1932. Rate of operation averages 31.16 per cent in seven months of 1933, compared with 21.73 per cent for the same period of 1932; daily average rate for seven months of 1933 is 67,739 tons, compared with 46,983 tons for the same period of 1932; total output for seven months of 1933 is 12,193,002 tons, compared with 8,503,932 tons in the same period of 1932. This is a gain of 42 per cent in production for seven months over the first seven months of the preceding year.

Steel Bookings Decline 4.1 Per Cent in July

Unfilled tonnage of the United States Steel Corp., as of July 31, declined 86,546 tons, from 2,106,671 tons as of June 30, to 2,020,125 tons July 31. This is a drop of 4.1 per cent. Bookings remaining unfilled at the end of July were at the highest mark since the end of June, 1932, with the exception of June, 1933.

A decline at midsummer is the seasonal expectation and creates no surprise. Additionally, inventories of consumers are low and demand for prompt shipment has caused mills to roll orders promptly. Little buying is being done for deferred delivery, except in the case of large construction projects. These factors have the effect of limiting tonnages on mill books. Desire to have shipments made before higher prices become effective is another strong incentive to prompt specification by buyers.

Only once in the past six years has the unfilled tonnage shown a gain in July over June. This was in July, 1930, when a gain of 53,991 tons was reported.

Steel Ingot Production — 1932-33

93.71 Per Cent of Industry Reporting

Gross Tons

	Open-hearth	Bessemer	Monthly output companies reporting	Calculated monthly output all companies	No. of working days	Approximate daily output all companies	Per cent operation
1932							
Jan.	1,230,907	160,633	1,391,540	1,484,991	26	57,115	26.41
Feb.	1,230,970	157,067	1,388,037	1,481,252	25	59,250	27.40
Mar.	1,149,193	193,944	1,343,137	1,433,337	27	53,087	24.55
Apr.	1,036,163	144,197	1,180,360	1,259,629	26	48,447	22.40
May	950,838	103,593	1,054,431	1,125,243	26	43,279	20.01
June	755,068	100,249	855,317	912,757	26	35,106	16.23
July	653,039	102,916	755,955	806,722	25	32,269	14.92
7 Mos.	7,006,178	962,599	7,968,777	8,503,932	181	46,983	21.73
Aug.	696,122	97,323	793,445	846,730	27	31,360	14.50
Sept.	804,470	124,970	929,440	991,858	26	38,148	17.64
Oct.	885,773	132,876	1,018,649	1,087,058	26	41,810	19.33
Nov.	838,419	128,844	967,263	1,032,221	26	39,701	18.36
Dec.	724,917	81,932	806,849	861,034	26	33,117	15.31
Total	10,955,879	1,528,544	12,484,423	13,322,833	312	42,701	19.75
1933		**96.57 Per Cent of Industry Reporting**					
Jan.	885,743	109,000	994,743	1,030,075	26	39,618	18.23
Feb.	922,806	126,781	1,049,587	1,086,867	24	45,286	20.83
Mar.	784,168	94,509	878,677	909,886	27	33,699	15.50
Apr.	1,180,893	135,217	1,316,110	1,362,856	25	54,514	25.08
May	1,716,482	216,841	1,933,323	2,001,991	27	74,148	34.11
June	2,211,657	296,765	2,508,422	2,597,517	26	99,904	45.96
July	2,738,083	355,836	3,093,919	3,203,810	25	128,152	58.95
7 Mos.	10,439,832	1,334,949	11,774,781	12,193,002	180	67,739	31.16

Figures exclude crucible and electric ingots. Operating percentages for 1932 are based on 67,473,630 gross tons annual capacity as of Dec. 31, 1931; for 1933, on 67,386,130 gross tons annual capacity as of Dec. 31, 1932.

Died:

JOSEPH D. OLIVER, 83, chairman, Oliver Farm Equipment Co., at South Bend, Ind., Aug. 6. He was the son of James Oliver, pioneer iron master, and started his career as an office boy in the South Bend Iron Works, which later became the Oliver Chilled Plow Works, one of a group of companies in 1930 organized into the Oliver Farm Equipment Co.

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Carl M. Johnson, manager, Sandvik Steel Co., Seattle, in that city. Aug. 1.

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Loren B. Wilson, general manager, Toledo, O., plant of National Malleable & Steel Casting Co., in Toledo, July 26.

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Floyd F. Woods, 61, Pittsburgh representative for Roots-Connersville-Wilbraham Co., Connersville, Ind., at Pittsburgh, Aug. 2.

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Leo Frankel, 69, president, Frankel Bros. Metal Co., and National Electric Heating Co., Toronto, Ont., in that city, Aug. 9.

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William Davies, 72, for 44 years a resident of Birmingham, Ala., and for many years superintendent of the old Birmingham Rolling Mill, July 30. Recently Mr. Davies had been connected with Gulf States Steel Co.

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William Cox, 53, former superintendent of the Canadian Steel Foundries at Longue Point, Que., in Montreal recently. He also was associated with the Joliette Steel Co., the Stainless Steel Foundries, Shawinigan Falls, Que.

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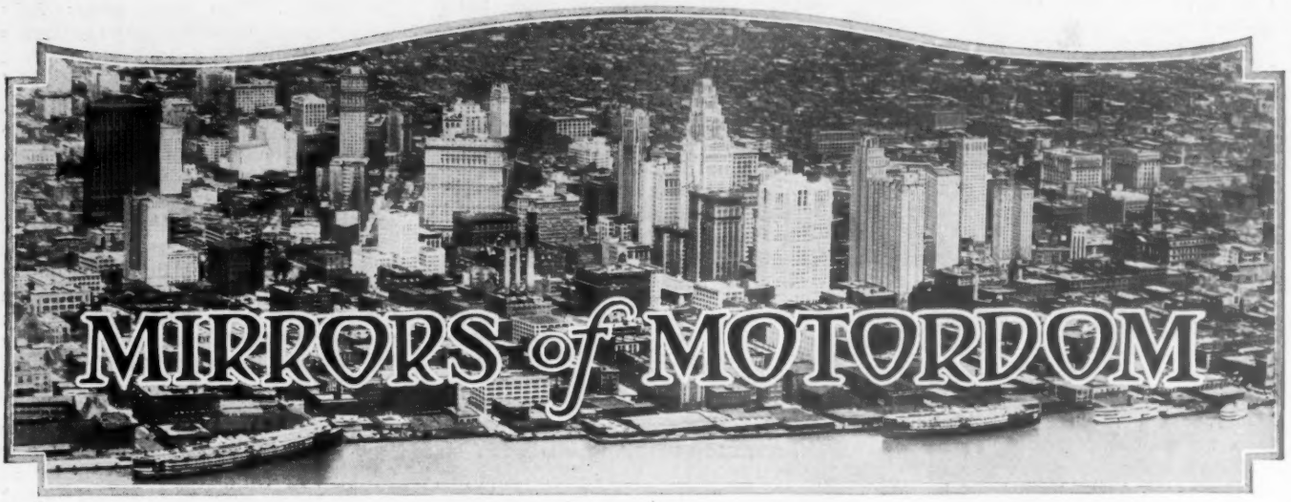
John L. Spitzer, assistant treasurer, Schiavone-Bonomo Corp., New York, Newark and Jersey City, N. J., scrap dealers, at his home, Bronx, New York, Aug. 7. Mr. Spitzer had been with the Schiavone-Bonomo organization since it started business in 1928. He was a past president of the New York chapter, American Iron and Steel Institute and widely known in the scrap trade.

Draw Lots for Navy Bars

Jessop Steel Co., Washington, Pa., has been awarded by lot 11,024 pounds corrosion-resisting steel bars for the navy, Brooklyn, N. Y., at $3317.26, delivered. Several bidders submitted the same quotation.



DETROIT

IF ONE were "counting noses" on the drive-off of the assembly lines of motordom last week, he would have noted that Chevrolet dropped but that this General Motors assembly slack was filled by Pontiac's gain, that Ford improved and that Chrysler steadied.

In all, the industry put together 58,000 cars last week. This was a 12 per cent drop from two weeks ago. A year ago, not many more than 58,000 cars were built in an entire month.

Ford has risen to around 2500 assemblies daily. Tentatively, 15,000 assemblies per week are being scheduled at Fordson for through August. But conservative observers believe that instead of 60,000 for the month, somewhere between 50,000 and 55,000 models will be assembled.

This production temperance comes from the decision by Ford a week ago to return to the five-day, eight-hour weekly schedule. Forty hours a week, therefore, replaces 48 hours.

But, like putting on a performance of "Hamlet" without Hamlet, the automobile industry's code and its intended 35-hour week, still lacks a commitment one way or the other from Ford. Ford stands pat, asks for no more cards and so far has not shown his hand when called on codes.

REPORTS from Detroit credit the Fordson plant with having just started up operations on the company's small 10-inch bar mill. This mill, adjacent to the continuing cold open hearth, is the smallest of the Ford bar mills. All of them have been down for many months.

Stacked billets are to be rolled down, but none of the ten open hearths are to be lighted. Many of Ford's steel prices from outside mills went up Aug. 1. The observer may only draw his inferences. Presumably, from the Ford standpoint, some sizes of steel bars are now cheaper to roll than to buy.

Watching for a new Ford model to become fact is almost as tedious as the antics of Tantalus in Hades; guessing on its pre-natal appearance is almost as fatal as predicting the stock market. Six years ago when Model A was an embryo, observers' speculation ran high until it was announced. Two years ago when Ford divorced the four for an eight the same manner of rumor ran strong.

A growing vein of speculation on the course future assemblies will take at Fordson is in evidence in Detroit again today. But whether the Ford model of the near future, still designated as "Model 44" is ripe enough to supplant or supplement the present Ford eight is indecisive.

A batch of ten completed test models of the "44" recently were ordered at Ford's. The most consistent reports indicate the probability of a 104-inch model with a smaller engine.

Bobbing up again is the story that with this model Ford will tap that vast virgin market for the consumption of automobiles that predicates itself on a delivered price per unit of no more than $300. To bear this out, it is freely thought in Detroit that, initially at least, no trade-ins will be accepted on the "44."

The arrow is evidently aimed to be thrust into that class of individuals who do not now, and never did, own for their own cheap transportation. Since motor cars are a luxury only when they get above a certain price and since their service is never a luxury, Ford apparently believes the $300 car would tempt out other than replacement buying in the industry.

Parts and steel for the "44" have been ordered in tonnage quantity for quite some time. Very little tonnage has been released, nor is there early promise. At least it is guesswork when releases are to be forthcoming. But it is significant that material for the job has been placed on the unfilled order books of suppliers awaiting shipping notices. Ford has been occupied for the present producing in quantity only the V-8's.

CHEVROLET assemblies at Flint are softening so that August in total may be as much as 20 per cent beneath July; September sizes up to be in turn 20 per cent beneath August.

Chevrolet has already placed some equipment for its 1934 models. Aside from a change in the spring suspension some version or variation of the Reo automatic gear shifting device is a possibility. All details for

Ford Silent on Auto Code

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Makers Planning '34 Models

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Cuts Large Tonnage of Sheets

Cars on Road Month After Sheet Orders Are Placed

THE "float" of steel, that is, the steel that motor car makers have in their inventories or in transit from the producing mills, is indeed small when one considers this story heard in Detroit.

Recently, a leading automobile producer kept a log with dates of its order for autobody sheets, shipment of the sheets, their fabrication into parts and disposition of the completed car.

The cars in which the sheets were used were driving on the highways in private owners' hands exactly one month to a day from the time the order for sheets was issued by the automobile manufacturer's purchasing agent.

the 1934 car have not yet been worked out.

On Chevrolet work mainly, although some Pontiac bodies are included, Fisher Body's main plant, located at Cleveland, has been setting records for steel consumption.

If all months were the same as June, this body plant would use 150,000 tons of sheets a year. In June approximately 12,500 tons of sheets were cut up. A high daily record recently was 660 tons, or 30 to 35 carloads. In one week of recent date almost 3500 tons of sheets were consumed by this plant.

Bodies and fenders for these two General Motors' cars after being stamped, drawn and assembled are then shipped out, mainly back to Michigan assembly divisions. This sheet consumer would make an attractive account, but there are reputed to be more than 20 different steel suppliers to Fisher.

BUICK foresees the end of its 1933 models and is cleaning up material releases on its last assembly schedule of these jobs. The manufacture and assembly of about 3000 more Buicks will run into September.

Incidentally, Buick, because of transpired time has inferentially abandoned the idea of introducing a "Century of Progress" car this year. Last spring Buick wanted to introduce a strikingly different series to come out in the early summer at the same time the Chicago Century of Progress began. Instead the 1933 lines have run through so far unchanged.

Auburn is making finishing touches on plans for five new models. Plans should be out around Sept. 1. Bids on parts will not be asked for a while after that so that it looks as though the new Auburns won't be before the public until late this year —maybe January, 1934. The new Auburn bodies are going to appear with a version of skirted fenders and greater "wind-resistant" curves. Mechanically, a revision is indicated too, for this has been one cause of hold-up on the release of plans for the model.

Chrysler had the biggest July in its history. The only other July which came close to the shipments of 55,119 models in the month just passed, was back in 1925.

Plymouth is providing the backbone to August schedules at 30,000 models. Dodge has scaled down from 650 daily, to 400, five days, but DeSoto entered August with a larger unfilled order book than in several months. DeSoto probably will make 4000 cars this month. The entire Chrysler unit seems to be ahead on castings as an operating reduction at the foundry was made recently from six to five days, weekly.

ONE of the ore-carriers, on its way up to the Lake Superior district "light" recently, stopped at Detroit and contrary to its usual practice took over 100 new automobiles up to Duluth on its decks. . . . South Africa, Belgium and Argentina, in the order named, were still our three leading export markets for passenger cars in June. They took most of the 4715 models exported. . . . A Pittsburgh district die block maker has been getting some good releases from Chevrolet and Chrysler asking rush shipment. . . . Chrysler shipped 272,888 units for the first seven months of 1933. This was a gain of 74 per cent over the same seven months a year ago. . . . Chevrolet's Saginaw, Mich., foundry has added 1553 men making the total employed there 5053. . . . Studebaker now has operations at the Detroit plant of Rockne all recalled to South Bend. . . . Hudson-Essex has run 20 consecutive weeks of improvement in sales of Terraplanes. Deluxe models are now equipped with radio receiving sets as standard equipment.

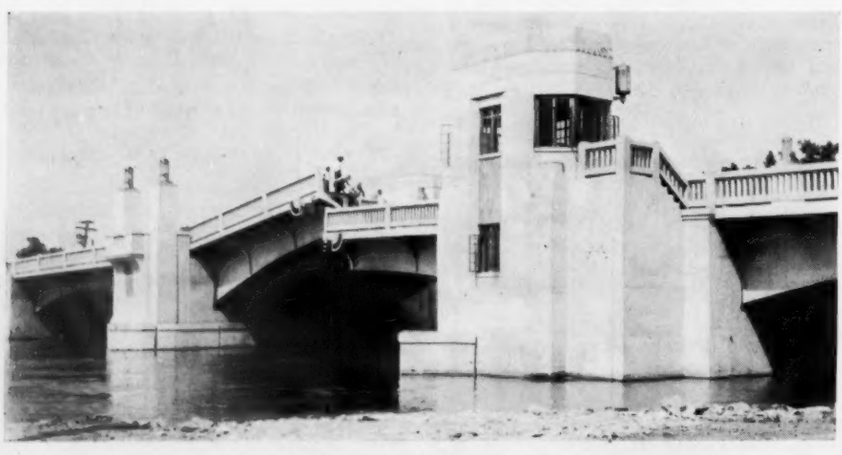
First Ohio Battledeck Bridge Dedicated

THE new bascule bride at Port Clinton, O., is the first bridge in the state to have a battledeck floor. This type of construction, having been used by the Michigan highway department on seven Michigan bridges, and on the 534-foot Burlington-Bristol bridge over the Delaware river is winning favor in other localities.

The Port Clinton bridge, dedicated Aug. 5 by Governor White, is 344 feet long, with a 40-foot roadway and a 5-foot walk on each side. It was constructed at a cost of $195,000 of which 50 per cent was paid by the national government, $39,000 by the state of Ohio, and the remainder by the county of Ottawa.

The main section of the bridge is composed of three steel arched girder spans, the center span being the 80-foot bascule, with a 60-foot span on either side. The battledeck floor construction comprises ⅝-inch steel checker plates welded to 6-inch 12½-pound I-beams, 2-foot, 4-inch centers, placed laterally between 12-inch, 31 8/10-pound I-beams, 3-foot, 4-inch centers, which are placed longitudinally between the girders.

This type of construction has many advantages. Being entirely of steel it may be erected at any time regardless of temperature; it weighs much less than other types which are considered fireproof, and therefore permits economy in the frame as well as the foundation. Being securely welded to the floor beams, it gives more lateral rigidity than is provided by other types of construction.



W. E. Miller Heads Iron and Steel Electrical Engineers

Association of Iron and Steel Electrical Engineers has elected W. E. Miller, mechanical and electrical superintendent, Bethlehem Steel Co., Johnstown, Pa., president for the year beginning Aug. 1.

W. H. Burr, mechanical and electrical superintendent, Lukens Steel Co., Coatesville, Pa., has been elected first vice president and J. A. Clauss, chief engineer, Great Lakes Steel Corp., Ecorse, Mich., is second vice president. G R. Carroll, Jones & Laughlin Steel Corp., Alaquippa, Pa., is treasurer; A. D. Adams, assistant superintendent, Spang, Chalfant & Co., Ambridge, Pa., is secretary, and J. F. Kelly, Pittsburgh, is managing director.

Plans have been formulated for the twenty-ninth convention and iron and steel exposition at Pittsburgh, Oct. 17-19, in which these officers will take an active part.

Industrial Men in the Day's News

W. B. Gillies, Vice President, Youngstown Sheet & Tube Co.

AT 49, he is in complete charge of operations of the Youngstown Sheet & Tube Co.

LIKE many steelmasters who have made their mark in this country, he comes from a Scotch family.

RECENTLY he devoted considerable effective effort to bring mortgage relief to Youngstown families.

W. B. GILLIES, recently elected vice president in charge of operations of the Youngstown Sheet & Tube Co., as noted in STEEL, July 31, comes from a Scotch family with a background in the steel industry. His father was a master mechanic in a Chicago steel mill in 1872.

Mr. Gillies was born in Chicago, and received his early education there. Shortly after his graduation from Cornell university in 1904, in mechanical engineering, he went to work in the construction department of the South works of the Illinois Steel Co.

In January, 1905, he went into the bessemer department. This was the start of a steady series of advances, until at the age of 49 Mr. Gillies has won recognition as one of the ablest operating executives in the industry.

In one year after he joined the bessemer department he was made night superintendent, and in 1907 he became superintendent. In 1912 he was made superintendent of the rail mill, in addition to the bessemer department, and in 1916 he went to Indiana Harbor as assistant general superintendent, to build a new plant for the Mark Mfg. Co., becoming general superintendent in 1920.

In 1923, when the Steel & Tube Co. of America was purchased by the Youngstown Sheet & Tube Co., Mr. Gillies was made district manager in the Chicago district for the company. Five years ago he went to Youngstown as assistant vice president in charge of operations.

A few months ago Mr. Gillies made a name for himself in Youngstown when he presented a plan to the chamber of commerce for a mortgage bureau that would give aid to harried home owners. As a result of the working of this plan, many home owners, who might have lost their homes, have them today.

Mr. Gillies is married and has two sons, one, William, just out of Dartmouth, and Don, who is in Yale. His hobby is golf.

WILLIAM CRAIG WOLFE has been appointed vice president in charge of sales of the Reading Iron Co., Philadelphia. During 1907-8 he was with the Commercial Steel & Iron Co., Chicago, a brokerage company representing several mills. In 1908, he joined the Seneca Iron & Steel Co., Buffalo, as a salesman, remaining with that company until 1919. He was then appointed assistant to the president of the Standard Steel Tube Co., Toledo, O., and two years later became manager of sales for the Highland Iron & Steel Co. In 1928, he was made general manager, serving in that capacity until his recent appointment with Reading.

□ □ □

Winthrop W. Aldrich, president, Chase National bank, New York, was elected a director of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., at a recent meeting of the board. He is a son of the late Nelson W. Aldrich who for many years was senator from Rhode Island.

□ □ □

Major R. A. Bull has terminated his connection with the Steel Founders' Research Group and expects to engage in private consulting practice with headquarters at 541 Diversey parkway, Chicago.

□ □ □

B. T. Tremaine, who has been a member of the staff of McCarthy Bros. & Ford in Buffalo is now associated with the Westinghouse Electric & Mfg. Co. in the same city.

□ □ □

Harris S. Currier, for eight years employed by the Otis Steel Co. as mill representative in the Detroit district, has accepted a similar position with the Inland Steel Co., effective Aug. 7.

□ □ □

David F. Austin, sales representative of the Carnegie Steel Co., Pittsburgh, at Cincinnati, has been appointed Pittsburgh district manager of sales, effective Aug. 15. Mr. Austin, who succeeds the late Dennis Crowley, was born in New York and is a graduate of Columbia university.

William E. Blackburn, who has been assistant manager of sales at Pittsburgh will succeed Mr. Austin

(*Please turn to Page* 64)

EDITORIAL

Go Beyond Arithmetic When Studying Price Disparity!

WITHIN a few weeks the question of prices will become one of the most important problems confronting the nation. It is inevitable that the interests of the consuming public and code signers will conflict. NRA may be able to reconcile the differences; if not, direct control of prices may be the only alternative.

To date, a surprisingly small amount of attention has been given to the cost of the recovery program. In the code hearings at Washington, representatives of labor and of the government have demanded revisions in codes which involve increased expenditures amounting to millions of dollars. In theory, the increased purchasing power of the employed is expected to reimburse the code signer for his increased expenses. In practice, assuming that the recovery program will be a complete success, there will be a lag of several months from the time higher costs are incurred until increased income can be derived from expanding mass purchasing power.

Burden on Code Signer Compels Him To Cover Higher Costs Through Higher Prices

This means that a code signer, having assumed increased costs, must meet them out of his working capital or cut deeper into his reserves, if they are not already depleted. Credit facilities are practically nonexistent. Under such conditions, he has a legitimate motive for raising prices as rapidly as possible—at least to the extent of meeting his increased costs.

But this is contrary to the interests of consumers, particularly if prices advance sharply before increased wages and expanding employment have had a chance to be transformed into purchasing power. Recognizing this fact, NRA already is issuing warnings against drastic price advances.

The problem is further complicated by the well known disparity in price levels. Much is being made of the fact that prices of farm products have declined nearly 50 per cent since 1929, whereas the prices of certain materials, including iron and steel, have declined about 20 per cent. A government statement on price disparity points out that "iron and steel products had fallen less than 20 per cent, while rubber had dropped 85.7 per cent up to February last."

Walter Lippman says that "some rise in textile prices and in food is justified, that fuels and leather goods ought probably to be held stable, that the prices of metal products and building materials ought probably to be reduced." In another article he refers to the "artificially high price of steel."

Evidently Mr. Lippman and the others who have been sniping at steel prices have fallen into the old error of believing that the mathematics of price declines over a given period tell the whole story. They overlook the fact that great disparity of prices prevailed in 1929 and that certain factors of high cost, such as freight rates, affect some industries more than others. We have gone into that in detail before and will not repeat it now.

Iron and Steel Prices Far Below 1926 Level, Which Is Said To Be Government's Goal

Government officials have stated repeatedly that their goal for prices is the 1926 level. If this is true, iron and steel prices have some distance to go before exceeding the desire of the administration:

	Aug. 5, 1933	Average 1926
Basic pig iron, valley	$16.00	$19.30
No. 2 foundry pig iron, Chicago	17.00	21.65
Heavy melting steel, Pittsburgh	13.75	17.17
Open-hearth sheet bars, Pittsburgh	26.00	36.04
Open-hearth billets, Pittsburgh	26.00	35.04
Wire rods, Pittsburgh	35.00	45.00
Tank plates, Pittsburgh	32.00	37.84
Steel bars, Pittsburgh	32.00	39.75
Shapes, Pittsburgh	32.00	39.00
Sheets, No. 24, galvanized, Pittsburgh	57.00	78.75
Tin plate, Pittsburgh	4.25	5.50
Plain wire, Pittsburgh	42.00	50.00
STEEL's composite of iron and steel prices	30.02	38.26

When NRA delves into prices, as it probably will before long, it will be compelled to consider the disparities in the levels of the various commodities. However, in attempting to equalize the differences, it should not depend alone upon the percentage of price declines or upon any other purely mathematical device. It should take into account the manner in which important elements of cost bear unevenly upon various commodities.

If we must have price control, let us hope that it will be administered with a fair consideration of the facts and not with a blind reliance upon the mathematics of price indexes.

THE BUSINESS TREND

Industry, at Slackened Pace, Awaits Action on Codes

THE tendency of business to go along at a somewhat easier pace continues to be reflected in the weekly statistics. Revenue freight car loadings, after receding slightly in the week ending July 29, seem to be pointed for another modest drop in the week ending Aug. 5. Automobile production is tapering off moderately. It is estimated that output in August will fall below 180,000, compared with well over 200,000 in July. This indicated recession of 15 per cent is negligible in comparison with the seasonal dip which usually occurs in midsummer.

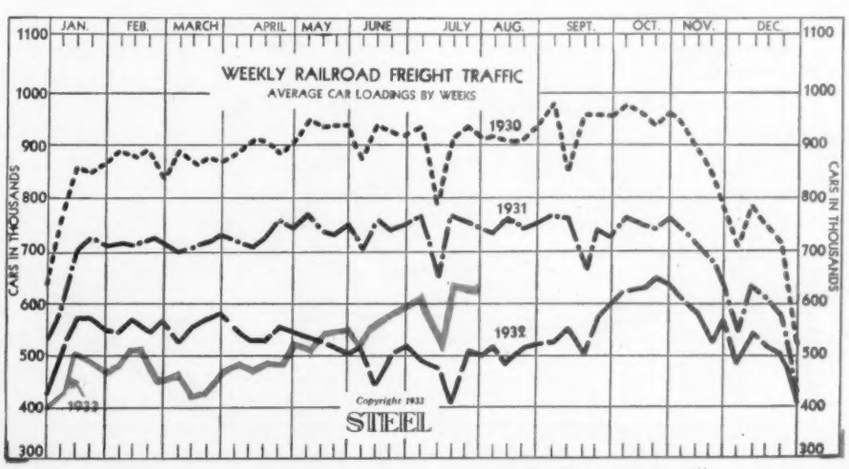
After having reached a peak of around 60 per cent of capacity in the third week of July, steelworks operations have slipped down gradually into the middle fifties. Statistics of the American Iron and Steel institute showed that steel ingot output in July was the largest since June, 1930. The average operating rate was above 58 per cent—a figure somewhat higher than that indicated by any of the weekly estimates.

Effects of the blanket code and of other NRA activities are not yet clearly defined. In certain branches of industry—particularly in the building of heavy machinery and equipment—there is evidence that uncertainties in connection with the recovery experiment have caused prospective customers to withhold action on some projects. Many manufacturers are deeply concerned over the "drying up" of fresh inquiry which appeared in encouraging volume only a few weeks ago.

The approaching visit of experts from Russia for the purpose of discussing trade relations with the United States is arousing mild interest in industrial circles. Under proper safeguards, business from this source would prove to be a godsend to hard pressed machinery and equipment concerns.

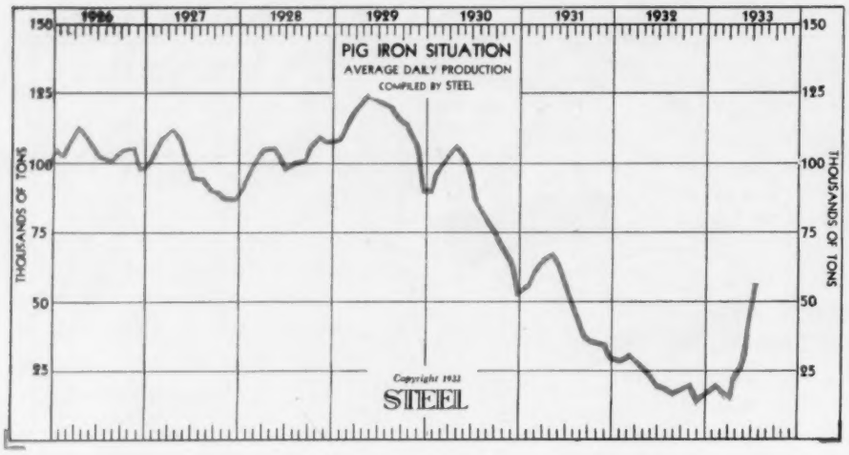
Major Problems of NRA Are Due for Decision During Next Three Weeks

Labor difficulties have been postponed through NRA activity, but undoubtedly will break forth anew when codes for the basic industries have been accepted. Many issues, closely allied with NRA policies, probably will come to a head between now and Labor Day. Price problems will assume greater importance.



1933
July 29....648,396
July 22....648,914
July 15....648,206
July 8....539,223

1932
July 30....511,103
July 23....501,912
July 16....503,761
July 9....415,928



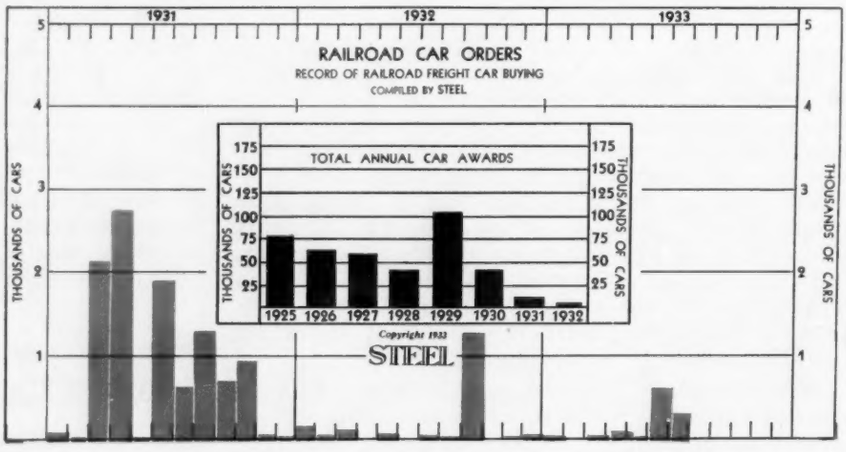
July, 1933	58,108
June, 1933	42,165
July, 1932	18,394

June Pig Iron Production Highest Since May, 1931

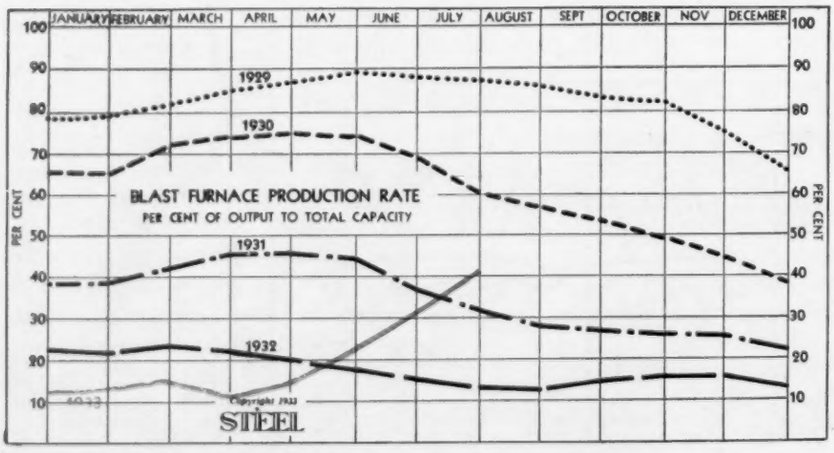
The average daily output of coke pig iron in July was 58,-108 tons, an increase of 15,943 tons, or 37.8 per cent, over the daily rate of the preceding month. This was the highest daily output recorded since May, 1931, with 64,355 tons. In July, one year ago, iron was made at a daily rate of 18,394 tons, while two years ago the daily output stood at 47,170 tons. Since March the daily production rate has expanded 40,624 tons.

Freight Car Awards Show Gain Over Last Year

There were awards for 306 domestic freight cars in July, bringing the total for the first seven months to 872 cars, compared with 384 cars in the corresponding period last year. In July last year there were awards for 25 freight cars while for the same month in 1931 orders totaled 617 cars. While car loadings in recent weeks have attained new peaks for the year to date, most carriers are repairing their present rolling stock to meet the present traffic demands.



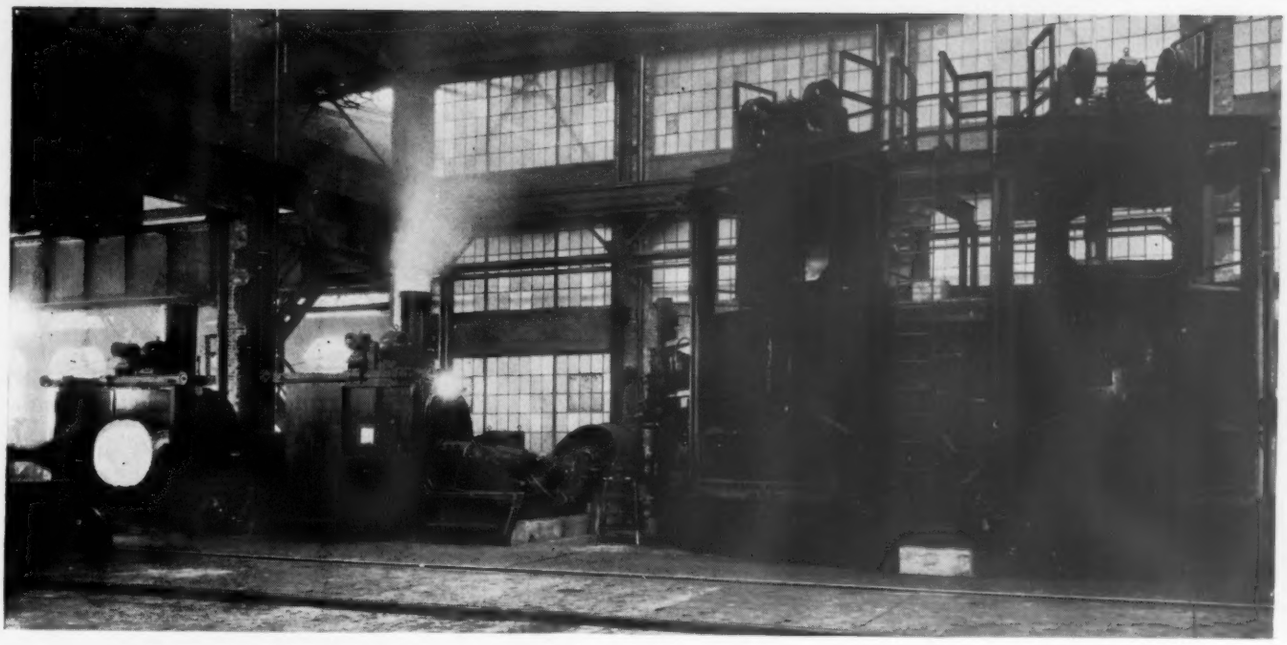
July, 1933	306
June, 1933	500
July, 1932	25



July, 1933	42.2
June, 1933	30.6
July, 1932	13.0

Blast Furnace Operations Up With 105 Stacks Active

With July output of iron aggregating 1,801,345 tons, 15 blast furnaces resumed operations, raising the active total of 90 on the last day of June to 105 on July 31. This is the largest total since May, 1931, when the same number was in blast. Relating production to capacity, operations in July were 42.2 per cent, against 30.6 per cent in June and 13.0 per cent in July, 1932.



The charging machine, running on tracks in the foreground, here is placing a white hot wheel in one of the two adjacent quenchers at the left. At the right is the 32-foot diameter rotary-hearth drawing furnace

CAR WHEELS ARE HEAT TREATED WITH SYNCHRONIZED EQUIPMENT

AUTOMATIC, precision control methods are signal achievements in a recently completed unit designed for the heat treatment of wrought steel wheels in the Johnstown, Pa., wheel plant of the Bethlehem Steel Co. Combined with a carefully synchronized layout and the latest types of equipment the setup makes it possible consistently to obtain uniform results; at the same time the handling of large runs is speeded up and simplified.

The new heat treating unit forms an integral part of the wheel plant, being so located that wheels which are to be treated can be diverted through it with a minimum amount of travel and disruption of ordinary routine movement. Three major operations are involved in obtaining the desired results, namely, heating, quenching by a distinctive method, and drawing. Special equipment, almost entirely automatically controlled, has been installed for these operations, practically eliminating the possibility of errors due to human fallibility.

A circular, continuous heating furnace with rotating hearth; a floor-type charging and withdrawing machine; two motor-driven quenching units; a drawing furnace similar in type to the heating furnace; cooling pits; and various auxiliary equipment such as fuel tanks and pumps, time clocks, and control boards comprise the complete installation. The main operating units are grouped in a compact ensemble, thereby avoiding unnecessary handling of material and at the same time providing ample room for convenience.

The charging and withdrawing machine operates on a track which lies between the heating furnace on one side and the quenchers and drawing furnace on the other. At one end of the track is a transfer platform on which wheels for treatment are placed. At the other end is a similar platform on which wheels removed from the drawing furnace are deposited for transfer to the cooling pits which lie beyond.

Wheels are diverted to the heat treating unit after what is known as the first or "hot bed" inspection. In the process of manufacture the wheels, after being forged, rolled and dished to the required shape, are placed on a hot bed where they are allowed to cool slowly to room temperature. Then they are given a thorough first inspection which includes a check-up of general condition, taking of tape measurement, and the like. Wheels requiring no heat treatment go direct to the machine shop from here; those that are to be treated are carried by an overhead crane to the transfer platform located

Front view of the drawing furnace, showing the two doors for charging and removal of wheels. The furnace accommodates 30 wheels

at one end of the heat treating unit.

All movements of the wheels incidental to the necessary shifts of location in the course of the heat treating operations proper are made with the aid of the one charging and withdrawing machine which serves both furnaces and quenchers. This machine was designed specially for the installation. In general it is similar to conventional equipment of this character designed for a high degree of flexibility in operation. Modifications have been made, however, including the provision of self-contained compressed air equipment for actuating the gripping jaws and the installation of special controls which permit the operator to open and close the furnace and quencher doors. There are nine operating controls, one of which has four positions, and another two.

First step in the heat treating process is to place the wheels in the heating furnace where they are gradually heated to a specified temperature which is maintained constant for a definite length of time. Time and temperature are determined by the metallurgical department and are governed by the shape and section of the wheels being treated.

Furnace Hearth Rotates

The heating furnace is circular in shape and is a rotary-hearth type of furnace. It has an outside diameter over the brickwork of 43 feet 5 inches. The annular hearth is 7 feet 3 inches wide with a mean diameter of 32 feet and capacity of 54 passenger car wheels, 36 inches in diameter. A motor drive, placed in the circular space of the center of the furnace and reached by stairs leading under the furnace, rotates the hearth through reduction gears and a rack and pinion drive. The rack is attached to the lower side of the hearth. The hearth is supported on stationary rollers and is held concentric with the furnace by means of roller guides. Two doors are provided, one for charging and the other for discharging.

The furnace is divided into four heating zones, each controlled through a thermocouple. In the first zone, into which the cold wheels are placed, the wheel temperature is gradually increased from room temperature to about 1200 degrees Fahr. In the second zone the temperature of the wheel is raised to 1400 degrees Fahr., while in the third and fourth zones a constant temperature of about 1600 degrees Fahr. is maintained.

Separated by Baffles

A baffle wall in the furnace between the charging and discharging doors separates the first and fourth heating zones and maintains the difference in temperature which exists at these points. Sand seals are provided at the outer and inner circumference of the hearth. Refractory blocks, built into the hearth and staggered, allow free circulation around the wheels and form a satisfactory bed for the wheels while being heated.

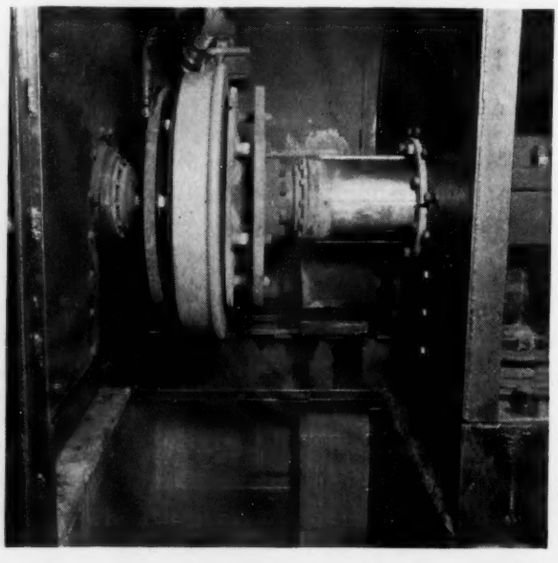
Oil fuel is used and is supplied from an independent fuel storage and pumping unit automatically controlled for temperature and pressure.

The most important feature of this furnace, as well as other equipment to be described, is the absence of manual control. Potentiometers control the temperature of the heating zones. Fuel temperatures and pressures are controlled automatically. The time of start of rotation is governed by an automatic time clock which can be set so that the intervals of rotation give any desired heating time. Rotation occurs in steps equal to the width of one door.

One wheel at a time is taken from the transfer platform and placed on the vacant portion of the hearth when the charging door opens. In the same way, at the proper moment, the discharging door is opened and a wheel, now at the proper quenching temperature, is lifted over to one of the two quenchers.

Rims Are Water Quenched

The quenchers, designated also as spinners, are two in number and operate independently. The quenching machine is so arranged that a wheel may be clamped between two revolving disks and rotated on its axis while water is sprayed on the rim from a nozzle. The disks protect the web from the water, thus preventing objectionable internal stresses in the web where high strength is required. A steel hood encloses the revolving parts and is provided with an electrically operated sliding door which permits the entry or withdrawal of the wheel. All



INTERIOR view of quencher, with wheel in position. Note how the patented disks on either side of the wheel protect the hub and web from action of the water which is sprayed from a nozzle above as the wheel is rotated

movements of the machine are electrically operated and interlocked to insure correct sequence. The process is started from the control on the charging machine and the duration of the rotation and water application is governed by time clocks.

Best hardening results are to be obtained when the steel to be hardened is cooled through the critical range A_3-A_1 as rapidly as possible. Water was selected as a quenching medium for this reason, since it can be obtained in large quantities, avoiding the necessity of re-using the quenching medium.

Variations in thickness such as are encountered in a wheel also introduce a hardening condition that must be considered. The proper quenching of the large mass of metal in the rim portion is likely to result in too drastic a quenching of the thin web. The Bethlehem process makes use of patented protection disks or shields which protect the thin web from being cooled excessively during the quenching of the rim. In this way it is possible to obtain the maximum effect in the quenching of the rim. At the same time the plate is kept free from stress and the hub is left in the unhardened condition which is so necessary to avoid undue costs arising in machining.

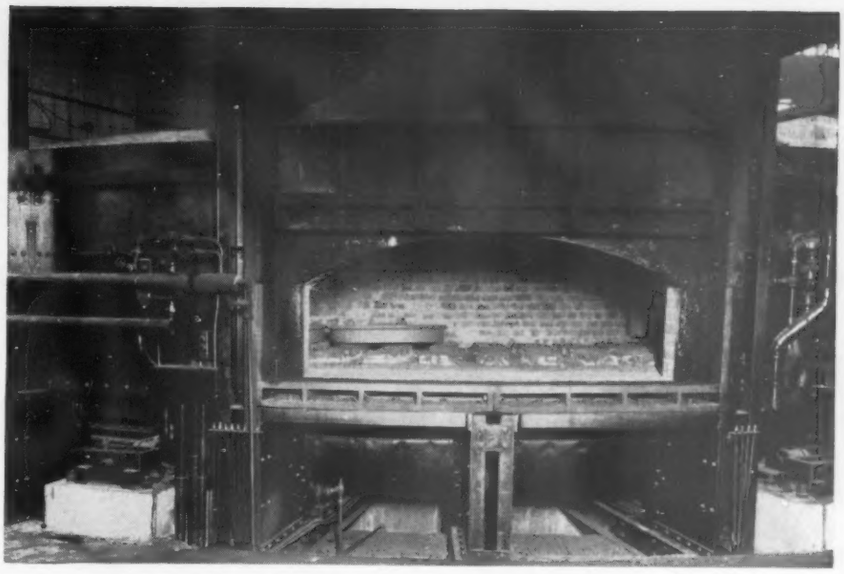
Sequence Is Automatic

Two important features characterize this quenching equipment. The first is the automatic control. From the time the wheel is placed in position every operation takes place at a predetermined time through the medium of a time clock in the control room. The starting of the motor that rotates the wheel, the application of the water and the time of quenching all are made uniform in this manner for every wheel that is handled.

The second feature is a precautionary measure. To avoid water dripping on the stationary wheel, thereby causing nonuniform hardness, several seconds are allowed to elapse after the wheel has been set in motion before the water valve starts to open. The same thing happens at the finish. The wheel continues to rotate after the closing of the valve until the pipe between the valve and spray has had a chance to drain. During the actual quenching period the wheel is rotated at a uniform rate under the spray.

After quenching the wheel is transferred to the drawing furnace, a movement which must be made in a minimum amount of time to avoid any chilling action by the air.

The drawing furnace is similar in design to the heating furnace except that a combustion chamber is placed above the hearth and separated from it by a perforated arch. This construction makes possible the uniformity of temperature in the furnace so important to this process. The furnace is divided into three zones in which a constant temperature of 950 degrees Fahr. is maintained automatically.



Door of heating furnace open, showing position of wheels as they are carried through the various heating zones on the rotary hearth

The furnace is 32 feet 5 inches diameter outside the brickwork. The rotary hearth is 7 feet 3 inches wide with a mean diameter of 21 feet and has a capacity of 30 passenger car wheels. Because of the smaller diameter of the furnace it is necessary to place the driving machinery outside. Details of operation are the same as in the case of the previously described heating furnace.

Cooled Slowly in Pits

After drawing, the wheel is removed to the second transfer platform, picked up by another overhead crane and placed in the cooling pits where it remains until it cools to room temperature. This is done solely for the purpose of protecting the wheel from possible drafts, a consideration which is particularly important in cold weather.

Time clocks, potentiometers and all related electrical equipment are located in a separate control room.

The capacity of the plant is rated at 15 wheels, 36-inch diameter, passenger car type, per hour. Provision has been made to heat treat wheels up to 54-inch diameter.

Success in the heat treating of wheels means more than care during the treating stages. Special precautions are taken in preparing the blanks from which the wheels are rolled, each blank being thoroughly annealed to refine its structure and eliminate stress. Annealed blanks are reheated thoroughly before the forging operations and subsequent tread rolling on the wheel mill.

Absorption of Gas In Welding Probed

BECAUSE the amount of gas absorption during welding has a vital effect upon the finished weld, research laboratories of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., recently constructed a special welding hood in which the atmosphere may be controlled for the study of gas absorption. In the hood weld pads can be prepared under any atmosphere. The chemical and gas analysis of the deposited metal gives an indication of the interaction between gases and metals.

At welding temperatures the solubility of metals for gases is generally increased. After the metal cools, some of the previously dissolved gases are given off and cause blow holes. Other gases are not liberated but remain in solid solution. These gases affect the properties of the weld material considerably.

With high-grade coated electrodes the oxygen content near the arc is low but the nitrogen content is over 90 per cent. However, the nitrogen absorption of the deposited metal is smaller with the higher nitrogen content in the atmosphere. With the use of the welding hood this phenomenon of lower nitrogen absorption in an atmosphere of 98 per cent nitrogen as compared with the nitrogen absorption in air was confirmed.

This result is of signal importance to the welding industry because it discloses some of the mechanism of absorption by weld metal. It shows that molecular nitrogen is hardly dissociated at iron-arc temperatures. It

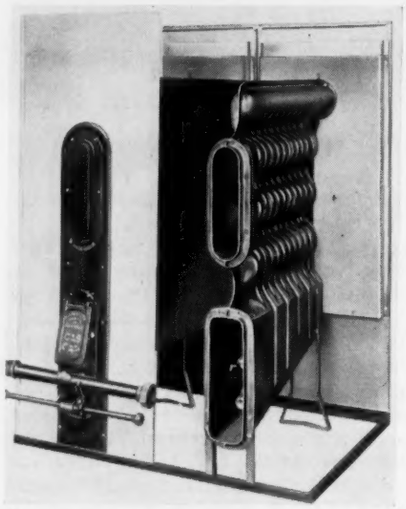
must therefore be assumed that nitrogen is absorbed by the weld metal in the form of an active nitrogen-oxygen compound.

Single gases or mixtures of gases can be admitted to the hood. If gases are employed which might give an explosive mixture, a spark-plug test is made in the gas mixture before starting to weld. If the pressure inside the hood is increased too much as a result of the heat developed by the arc, the flow of gas can be increased. The hood is connected to a vacuum pump which will retain a definite positive pressure within.

Gas Furnaces Condition Air To Prevent Rust on Sheet Stocks

MODIFIED air conditioning, as a means of preventing the formation of rust on full finished sheets for automobile bodies, has been accomplished in the warehouse of the Columbia Steel Co., Torrance, Calif., by the installation of five gas-fired warm air furnaces, operating automatically to supply heat whenever the combination of temperature and humidity approaches the dew point.

Each unit comprises a battery of 11 sections, two of which are shown in an accompanying illustration, spaced on 10-inch centers, and fully equipped with safety pilots, motor valves, limit controls and direct connected blowers in the furnace hoods. Equipment was built by the L. J. Mueller Furnace Co., Milwaukee.



Two units of the warm air furnace, showing arrangement of burners and construction of the interior steel heating element. Each furnace comprises 11 of these units

Controlled by Humidity

Reverse acting humidity control is provided on the furnaces; and, while hygroscopic control is not obtained, the automatic humidity control admits gas to the burners when the relative humidity in the space served reaches a point preset on the control instrument. Blower motors are controlled by manually operated switches.

Steel heating units in the furnaces are made up of sections formed by two large stampings peripherally welded into one piece. The stampings are of particular interest because of their intricate shape, involving a draw in two directions. The units are portable and demonstrate an effective use of steel and natural gas for the control of plant atmosphere.

PREVENTION of rust on these autobody sheets is assured by automatic operation of the portable warm air furnace in the background

Beveled-Edge Blades Are Made by New Process

A patent on an improved method for producing beveled blades has been granted to W. H. Bailey, chief engineer, Colorado Fuel & Iron Co., Pueblo, Colo., and assigned to the company. It is said that the process will enable the company to manufacture grader blades more economically and efficiently.

Methods described by the patent have been used by the company for more than a year in making outboard grader blades. The object of the process is to produce beveled-edge blades without shearing or forging. Where a high-carbon steel is used, as is usual in blades, the material can be sheared only when hot. This heating step is eliminated by the process. Where the beveled edge is produced by forging, the operations are slow and expensive.

Other objects of the process are:

1. To use stock having an even distribution of metal, in order that it may be rolled without warping or twisting out of shape during cooling.
2. To produce scraper and other blades, blades which may be made out of rolled stock in a single operation.
3. To provide methods of producing from rolled stock blades having beveled ends and irregular beveled edges.
4. To make simultaneously two beveled-edge blades by a single operation.

While the present process is adapted especially to the manufacture of beveled-edge blades for road graders, it is understood to be adaptable for making other finished products from rolled stock.

Alloy Data Are Compiled

As an aid to those vested with the responsibility for proper selection of alloys used for electrical, mechanical and chemical purposes, Driver-Harris Co., Harrison, N. J., has issued booklet R-33, 60 pages of technical data dealing with the properties and characteristics of the various alloys produced by this company, such as nichrome, comet, hytemco, manganin, lucero and others. Copies are avavilable from the company for 25 cents each.

Japanese rail mills have undertaken to roll 4072 metric tons of steel rails 25 meters long and 1654 metric tons 37 meters long, the first long rails to be rolled in that country.

. . BE SURE OF RESULTS

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- Polished and Galvanized Staples
- Galvanized Barbed Wire
- Woven Wire Fence

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Seen

at A

CENTURY OF PROGRESS

AN ANTIFRICTION bearing, claimed to be the largest ever made, features the exhibit of the Timken Roller Bearing Co., Canton, O., in the Travel and Transport building. This bearing weighs 3½ tons and has a capacity of 8,000,000 pounds. It is designed for use on roll necks of steel mills.

Increasing interest in bearings for railroad cars and locomotives is drawing attention to a railroad bearing also shown in this exhibit.

Another feature is the rock bit, the newest product of the Timken company. Although this bit has been on the market for only a short time, it is said to have effected drastic economies in drilling costs in mining, quarrying and contracting operations. Instead of being forged on the end of the drill steel, the bit is made separate and is attached to the drill steel by a thread which makes it a matter of seconds to remove it and throw it away when it becomes dull. This eliminates resharpening costs which always have been a major part of drilling expense.

♦ ♦ ♦

Roof section of the assembly plant of the General Motors Corp. building presents an unusually clean appearance, welded beams having been substituted for the ordinary truss design on the 100-foot span. In fabrication, a pie-shaped section was cut from the lower flange and web of the 18-inch beams, the angle being such that when the beams were bent to close the removed area, the proper roof curve was formed. The rejoined flanges and webs then were welded, and splice plates were riveted to the under flange to provide additional strength to the member. Gage Structural Steel Co., Chicago, was the fabricator.

General Motors is assembling 24 Chevrolet cars daily in this building. This rate could be increased considerably, but the purpose of the exhibit is to demonstrate how automobiles are built rather than how fast they can be assembled. The 150 men employed on the assembly line represent about the usual number required for this type of production.

Two lines are operated, one being the final assembly of all parts, the other being the Fisher Body line where manufacturing steps from the various parts to the finished product are demonstrated. Steel body sections are formed elsewhere, the only fabrication being done at the World's fair plant being the welding together of the side panels and back panels and the welding of the roof rail cover panels to the front ends of the side and rear panel asembly. After bodies receive their final buffing and striping they are moved to the assembly line for mounting on the chassis.

♦ ♦ ♦

Practically every exhibit at A Century of Progress that is identified with the fields of science and industry will find a permanent home at the Museum of Science and Industry in Jackson park at the fair's conclusion. This building was the Fine Arts structure of the 1893 World's fair and its restoration has been accomplished by funds provided by the late Julius Rosenwald. About 200 exhibits already have been installed and when completed the museum will include 12 miles of displays covering every phase of scientific and engineering activity.

♦ ♦ ♦

For $16.65 an adult can see everything that is to be seen at A Century of Progress. This includes every pay concession and Midway amusement. Add to this a $3 observation ride in a dirigible balloon, a $3 airplane ride and a 50-cent boat tour of the lagoons, and the total is $23.15. A child under 12 years old can do the entire Fair, including all pay attractions, for $12.05.

This is the officially tabulated, outside total.

What actually happened was that the 2,464,413 visitors who paid gate admission in its first month spent $2,500,000 among the concessions, an average of a dollar each, in addition to their 50-cent admission (25 cents for children under 12).

The gate admission includes 85 exhibition buildings and features and 82 miles of exhibits.

♦ ♦ ♦

Century of Progress exposition claims the longest soda fountain in the world—the Marine Fountain which has as a back wall for nearly its entire 120-foot length an aquarium containing hundreds of fish. It is the *ne plus ultra* of soda fountains and is but one feature of a modernistic drug store which it embellishes.

A new decorative note was struck in the metal trim of both this fountain

and another but smaller soda and lunch bar adjoining the Hall of Science. Practically all of the rim is of stainless-clad steel produced by the Ingersoll Steel & Disc Co., a division of Borg-Warner Corp., Chicago. Application of this metal includes counter edging, foot rests, kick plates, stool trim, stool standards, splash boards behind the fountains, back bar, back bar doors, sink tops and drain boards, shelving, cutlery bins and trays and serving table tops.

All wearing surfaces, such as kick plates and cutting trays, are of No. 16 gage and those surfaces used solely for decoration are of No. 18 gage.

Lighter gages ordinarily would have been recommended, but installers wished to have the benefit of the strong, sturdy appearance offered by heavier gages. There is no suggestion of wavy surfaces or frail construction in this trim.

All surfaces except stool standards and stool trim have a lustrous polish, the latter having soft satin finish to avoid excessive glare. Several thousand pounds of stainless clad steel was used in the construction and was furnished at a cost considerably below that of solid stainless metals.

ADVERTISING PAGES REMOVED

Making the Most of

METHODS AND MATERIALS

UNLIKE ordinary steel, chrome-nickel stainless steels do not chip or break out ahead of the cutting point in drilling. The drilling must be done all the way through. The metal should be backed up in a manner that will permit the drill to cut all the way through without pushing the steel away from the drill point, as under these conditions the drill will become very hot and the drill point will be burned. A cast-iron backing plate has been found most satisfactory. The speed of the drill should be one-half that used in drilling mild steel. Immersing the tool in water after each hole is drilled will considerably increase the life of the drill.

$ $ $

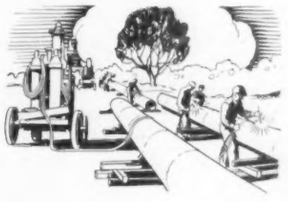
A cast iron which is cast centrifugally and is suitable for hardening by the nitrogen-hardening process, owes its susceptibility to the treatment to the presence of aluminum and chromium in the metal. A typical chemical composition is as follows: Total carbon, 2.75; silicon, 2.75; manganese, 0.75; phosphorus, 0.10; aluminum, 1.75; and chromium, 1.75 per cent. Exposed to anhydrous ammonia gas at a temperature of 500 degrees Cent. under conditions of the process, a surface hardening with a diamond hardness of 982 is obtained. A depth of penetration of 0.018 inch was obtained in a centrifugally-cast specimen with a 90-hour treatment under standard conditions.

$ $ $

PROCESSING equipment in an eastern chromium plating plant originally included gas underfired cleaning tanks and plating vats. The underfired system not only caused high radiation losses with resultant waste of gas and the difficulty of heating the tanks to processing temperature, but on several occasions the heat impinging on a tank would burn out the bottom. This involved the expense of installing a new tank and was responsible for serious delays in operation and considerable loss of chromium solution, which would drain off over night from a leaking tank. This difficulty led to the installation of a gas steam boiler with steam heating coils in both the cleaning and chromium tanks. Control by this method has proved flexible and economical.

$ $ $

Although the modern tendency is to weld everything that goes into a pipe line, including valves, manufacturers of steel gate valves have been reluctant to give unqualified approval to direct welding of these fittings because of the possible effect upon the valve bodies. One large valve maker recently made an exhaustive study of this subject and the results indicated clearly that the fear of the effects of welding temperatures is entirely unfounded, at least so far as well designed valves are concerned. Furthermore, there seems to be no sound basis for believing that valves intended for oxyacetylene welding should be provided with extended ends or cooling flanges. The regular flanged valve center-to-face dimensions are ample for welding end valves, regardless of the type of welding employed. Since valves frequently must be installed in cramped quarters where every inch of length counts, the all-welded job need not be penalized either in design or appearance by employing makeshift valves having unnecessarily increased overall dimensions.



$ $ $

By instructing his sandblast men to give the nozzle a quarter turn every day, the manager of an automobile engine casting plant increased the active life of a special type of nozzle from 300 to 900 hours. Apparently the wear is not uniform. It would be interesting to learn if similar treatment would result in worthwhile economies on the ordinary hard iron, comparatively short-life nozzles.

$ $ $

Railroads recently have been experimenting with a 3 per cent chromium steel for rails. Increased weights of locomotives and cars have placed new demands upon rail steel, especially on curved portions of track. Addition of 3 per cent chromium shows promising results from the standpoint of reducing wear, it is claimed.

$ $ $

INABILITY of city, county and state governments to raise sufficient money for normal improvements has started a new industry—that of increasing the strength of existing bridges so that they will stand the demands of modern traffic. The method is to back up weak members by welding reinforcing members to them. Concerns in Michigan, New York, Pennsylvania, and elsewhere which are specializing in this business do much of the welding with portable arc welders and generators.

$ $ $

The motion picture industry in Hollywood now uses a 5-foot film winding reel made of 11-gage full-finished monel metal sheet and ½-inch 16-gage seamless tubing to wind films as they come from the developing tank. The solution used in the bath, corrosive to most metals, does not affect monel.

$ $ $

High-speed hacksaw blades with a wavy tooth give the best results in sawing chrome-nickel stainless steels. For sawing comparatively light gages, 32 teeth to the inch are satisfactory. For heavier material, such as bars, and the like, blades with fewer teeth to the inch will be found more satisfactory and the recommendations of the hacksaw blade manufacturer should be followed. Care should be taken not to exceed the speed recommended, since high speed may cause the temperature to become sufficiently high to draw the temper from the teeth of the blade, rendering it useless.

SCANNING THE FIELD OF TECHNOLOGY

A Digest of Important Developments Pertaining to the Production, Processing, Application and Performance of Steel

Older Employes

Report compiled by the policyholders service bureau of Metropolitan Life Insurance Co., 1 Madison avenue, New York, 28 pp., 2 ills., 2 charts.

The Older Employee in Industry is the title of this report, copies of which are available to readers of STEEL upon request to the above company. The report is a consensus of replies received from questionnaires submitted to 5000 manufacturing companies, inquiring whether or not they have definite plans for dealing with the problem of the older employe. Of those replying, 800, which employ more than a million workers, stated that they have such programs in operation. These organizations told in some detail what they are doing. Details of these plans were tabulated, analyzed and prepared for presentation in the report.

—STEEL, 8-14-33

Rolling Stainless

By L. M. Curtiss, in Metal Progress, August, p. 27, 4 pp., 3 ills.

Details of rolling technique involved in the handling of stainless steel plate. Conditions to be avoided are enumerated. Greatest source of trouble is the breaking of rolls due to expansion, since stainless steel plate must be rolled for a short time on a dry roll. It is pointed out as advisable to alternate the alloy rolling with an ingot or slab of carbon steel; with the latter the rolls are drenched with a full flow of water, and consequently their temperature is kept down.

—STEEL, 8-14-33

Wear Testing

By N. N. Sawin of the Skoda Works, Czechoslovakia, in American Machinist, Aug. 2, p. 496, 4 pp., 7 ills.

A new method of wear measurement is presented and compared with previous tests. Under the new method wear is tested by a revolving tungsten carbide disk pressed directly against the work. Measure of wear is determined from the volume of the impression made by the disk in a given time.

—STEEL, 8-14-33

Refractories

By L. C. Hewitt, in Technical bulletin No. 40 from the American Refractories institute, Pittsburgh, July, 6 pp., 2 tables.

Details of specifications for refractories to be used for federal construction. At present there are three federal specifications for refractory materials, namely, fireclay brick, fireclay and plastic fireclay refractories. Steps have been taken to prepare federal specifications for silica brick and silica cement, but these will not be in effect for some time.

—STEEL, 8-14-33

Bright Annealing

Metal Progress, August, p. 19, 3 pp., 3 ills.

Description of equipment for bright annealing coils of strip in mass production at the Cuyahoga Works of the American Steel & Wire Co., Cleveland. A battery of electric furnaces of the bell type is operated for this work, the furnace shells being lowered over the strip which is stacked on a wide, flat base. Coke oven gas, from which oxygen, moisture and sulphur have been removed, is piped to the furnaces while the strip is being heated and cooled.

—STEEL, 8-14-33

Welding Bridges

By R. M. Gooderham, in Journal of the American Welding Society, July, p. 11, 3 pp., 3 ills.

Use of arc welding in bridges in Great Britain. Details of the first such bridge, built less than two years ago, are given. The structure is a small plate girder bridge, with a span of 62 feet 6 inches, and designed for a load of 20 tons. Welding procedure is summarized. Other welded bridges are now in process of construction.

—STEEL, 8-14-33

Shape Cutting

Oxy-Acetylene Tips, August, p. 173, 3 pp., 6 ills.

Place of oxyacetylene shape cutting in industry. Advantages of fabricated plate parts which have contributed to rapid development in the use of this process are cited. Practical examples are given of how shape cutting has been used in the fabrication of heavy steam shovel parts.

—STEEL, 8-14-33

Winged Ingot

By Donald G. Clark, in The Iron Age, July 6, p. 22, 2½ pp., 10 ills.

While the winged ingot was developed to make for uniformity of tool steels, the author of this article believes that the unexpected economies realized in manufacture, together with dependable uniformity of quality, open a field for the ingot in the making of all types of steel.

—STEEL, 8-14-33

Floor Surfaces

By Augustus T. Parsons, in Western Machinery and Steel World, August, p. 239, 1 p.

Discussion of the relation of floor surfaces to factory accidents. A safe floor surface should have following qualities: Nonskid, whether wet or dry; even wear; resilient and a poor conductor of heat; and nearly noiseless under both foot and wheel traffic.

—STEEL, 8-14-33

Rustproofing

Automotive Industries, July 29, p. 120, 2 pp., 2 ills.

How the finish of 1933 Oldsmobile cars is improved by rustproofing or bonderizing 44 sheet metal parts before enameling. Automatic equipment has been installed to convey each part through all steps of the process without manual attention.

—STEEL, 8-14-33

Gamma Rays

By Gilbert E. Doan, in Journal of the Franklin Institute, Philadelphia, August, p. 183, 34 pp., 19 ills., 4 tables.

Development of radiographic testing by means of gamma rays is traced from its beginning, and concrete examples of present applications are described. Mechanism of radioactivity is explained in detail.

—STEEL, 8-14-33

Nitrided Tools

By C. E. Greenawalt, in Machinery, August, p. 753, 6 pp., 4 ills., 3 tables.

Details of experiments extending over a period of several years, showing the advantages and limitations of nitrided cutting tools in regular shop practice.

—STEEL, 8-14-33

Grinding Bars

By Edward S. Heck, in Abrasive Industry, July, p. 8, 3 pp., 5 ills.

Application of precision grinding methods to the production of straight, round, cold-drawn steel bars.

—STEEL, 8-14-33

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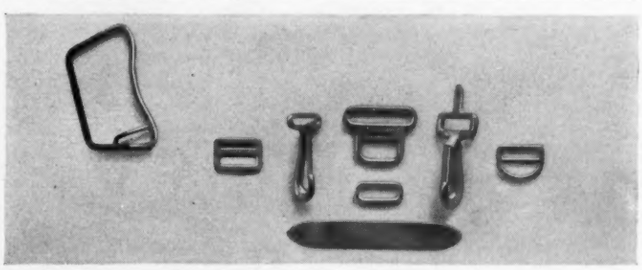

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IMPROVING OPEN-HEARTH FURNACE DESIGN

BY WILLIAM C. BUELL JR.

Part VI—Open-Hearth Furnace Ends

(Forty-Fifth and Concluding Article of Series)

FOR the consideration of the stresses developed in the buckstays at the furnace end, appropriate diagrams have been prepared which are shown in Fig. 66. Three sets of these diagrams cover the minimum condition (100-ton furnace), the common type (150-ton furnace), and the maximum condition (350-ton furnace). All of the buckstay diagrams are representative of the condition as found at buckstay BS2 of Fig. 64 and, therefore, are indicative of the maximum conditions.

The data shown in connection with dimension and loadings are obvious. The buckstay length below the point of reaction, R, which is at the tie beam, STB, is to reach the buckstay support at the slag pocket.

Moment diagrams are shown for both the tie rod and semirigid type of binding. Although the arguments in support of the semirigid type over the tie rod type for use at the ends are not as conclusive as those advanced with reference to the buckstay system of the furnace proper, it will be evident that the semirigid type is preferable inasmuch as the moments in the buckstays are somewhat less than when the tie rod type is used and there will be fewer possibilities of disalignment of these members.

That part of the buckstays below R will develop a positive moment. Without definite information as to the method of support and fastening the moment cannot be calculated conveniently. The moment will be relatively small, however, and for the purpose of the selection of buckstay sections it is ignored.

If calculation is continued with the 9000-pound fiber stress previously used it may be found that the following I-beam sections used in pairs will be satisfactory as end buckstays. For the 100-ton type, the 15-inch 42.9-pound standard section, which develops a section modulus of about 59; for the 150-ton size, the 15-inch 60.8-pound standard section having a section modulus of about 81; and, for the 350-ton size either the 18-inch 75.6-pound standard section or the 15-inch 80.5-pound Bethlehem section will be suitable. The depth will be the same as that of the buckstays at the furnace proper. The section moduli of these last two named sections is about 127 and 129, respectively.

The tie rods for the restraint of R_1 at the buckstay tops, with tie rod type of binding, using the design factor of 6000 pounds per square inch will necessitate rods having an area at the root of the threads of about 2 square inches for the 100-ton, 3 square inches for the 150-ton, and 4.66 square inches for the 350-ton furnace.

Channels Are Recommended

For the cross ties with the semirigid type the following channel sections used in pairs will be found appropriate. For the 100-ton furnace, the 8-inch 11.5-pound section with a section modulus of about 8; for the 150-ton furnace, the 10-inch 15.3-pound section with a modulus of about 13; and, for the 350-ton furnace, the 12-inch 20.7-pound section with a modulus of about 21 will be satisfactory. Gusset reinforcement will not be necessary if the necessary strength is developed in the connections at the buckstay tops.

The reaction at R is restrained by means of horizontal tie beams at the front and back walls maintained in position at their ends by tie rods extending through each element. These beam members are designated as STB, Fig. 64, and the rods as TR. The beams ordinarily consist of a pair of I-beams or channels riveted to the buckstays, BS1, BS2 and BS3. While tie rods commonly are found in this element of the binding, it is possible that the use of channels, well framed into the I-beams, might offer some advantages. The diagrams at the extreme right of Fig. 66 give the essential data regarding beams used for this purpose.

Based on the moment values given, the appropriate sections for the tie beams to be used in pairs for the 100-ton furnace might be the 12-inch 20.7-pound channel section developing a modulus of about 21; for the 150-ton furnace the 15-inch 33.9-pound channel developing a modulus of 41, or the 12-inch 31.8-pound I-beams developing 36. The 15-inch 42.9-pound I-beam section with a section modulus of about 59 would be appropriate for the 350-ton unit.

While tie rod, TRO, restrains less weight than TRI, it is desirable that both rods be of the same diameter. Consequently the diameter used for both ends will be calculated from the values found from TRI. By inspection it will be seen that the loadings are but slightly smaller than at the buckstay tops and for simplification it will be desirable to use the same diameters as are specified for use there.

Each set of front and back buckstays with their top and bottom ties, either at the furnace proper or the ends, are individual units designed

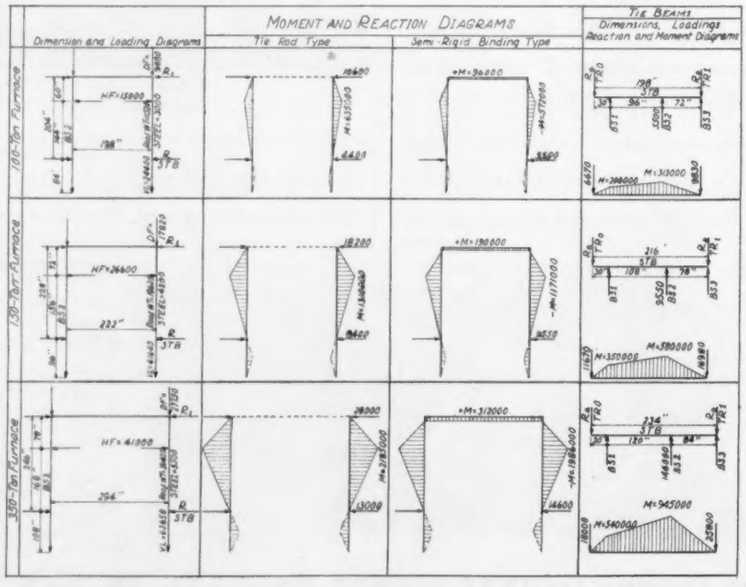

Fig. 66—Typical design data for consideration of stresses developed in the end buckstay system

for the restraint and the symmetrical maintenance of the transverse furnace brickwork. No consideration has been given the maintenance of the individual buckstays in their proper relation to the whole structure. This feature, as now discussed, has reference to Fig. 64. Framed to the top of all buckstays, both at the front, back and ends and arranged with ample connections at the four corners so as to form a continuous belt around the furnace top, is the side longitudinal channel, SLC. A second channel member starts from some intermediate point between buckstays BS2 and BS3 and extends to a similar location at the opposite furnace end. If the tie rod type of binding is used throughout, this second channel will parallel the side longitudinal channel, SLC, but on the inner face of the buckstays. If the semirigid type of binding is used, the corner gusset plates require a different arrangement. A good arrangement in which the second channel is laid flat at the buckstay tops is indicated as TLC, Fig. 38. The second channel member is desirable as a support for the skewbacks and as a part of the support of the doors.

Various Arrangements Available

At the furnace proper the bottom of the buckstays are tied by any of several arrangements into the bottom girders, BG. These girders extend only to include the chills and in order to stabilize them in the required position, horizontal tie rods, LTR, are extended through suitable blocks which are fastened to the girders. The tie rods continue to the furnace ends and are brought into bearing on the end brickwork through the media of the end tie beams, ETB, one of which is located at each end of the furnace. The tie beams, ETB, should be framed to the four end buckstays. Thus, it is evident that this method develops a second continuous belt around the entire furnace structure, supplementing and equalizing that at the buckstay tops.

Over the top of the furnace, longitudinal tie rods extending from end to end, are customary. The two inner rods, TR, centering in the buckstays, E BS1, are probably necessary as an end support of these buckstays. Tie rods at the tops of buckstays E BS2 are unnecessary if the longitudinal channel, SLC, is developed and framed properly.

Under some conditions it is possible that the accumulated longitudinal stress may become considerable, but it is probable that it is actually nominal. Longitudinal stresses are indeterminate and as no calculation therefore is possible, the size of the members subject to longitudinal stress will be selected on a basis of sizes known to have proven satisfactory in service.

Thus, 12-inch channels, SLC, will be satisfactory for the 100-ton furnace, 15-inch for the 150-ton furnace, and 18-inch for the largest furnace. The tie rods LTR at the girders may be 2, 2½ and 3 inches diameter for the respective furnaces with the development of the end tie beam, ETB, in such a design as will restrain successfully the loadings possible with rods of the given diameters. The top tie rods, TR, are ordinarily and arbitrarily 2 inches diameter for the smaller furnace and 2½ inches diameter for the larger.

No simple basis for the solution of the indeterminate stresses of the four end buckstays, E BS, is known; consequently, convenience will dictate their size. Ordinarily, they are of the same sections as the buckstays at the front and back of the furnace.

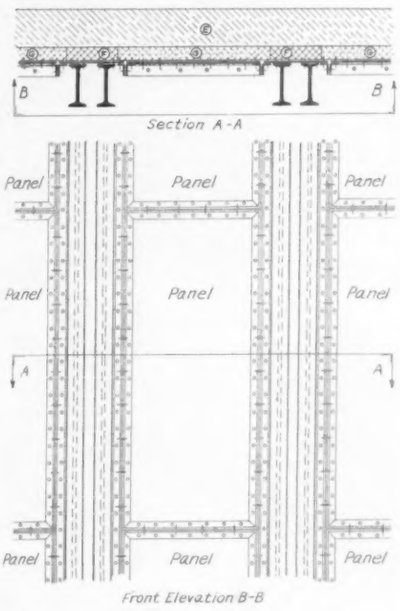

Fig. 67—Schematic arrangement for plating plane refractory surfaces with removable panels

Plating the furnace walls will be distinctly advantageous. Plating generally is practiced in connection with all the furnace system components below the charging floor and lately some furnace ends have been plated in part at least. To derive the greatest advantage all vertical walls of the furnace ends should be covered entirely.

Plating Now Feasible

In the past the seeming inability to hold the outer surface of the bulkheads at low temperature and their short life apparently has precluded their effective sealing with plate. Recently, however, the discovery that bulkheads not only may be constructed to last the normal life of the furnace campaign but may be insulated effectively, has presented the opportunity to effect 100 per cent plating of the vertical furnace end walls.

Primarily, plating is of great value in preventing the infiltration or exfiltration of air and furnace gases through the walls from pressure differential effects, and the abatement by this improvement of construction of one of the serious and uncontrollable variable factors of operation is a decidedly forward step towards a better economy in the practice.

Another value lately apparent is the ability to use relatively inexpensive insulation of high-heat resistance but with inferior mechanical properties in conjunction with plate construction.

A simple and satisfactory design for plating plane vertical surfaces, utilizing unit panels between the buckstays that are removed easily for inspection or repairs is offered in Fig. 67. While probably all new construction will be offered to include plating, many existing furnaces would be improved vastly as to operation and maintenance by the addition of plating.

Applicable to Present Furnaces

The method shown has an advantage in that it may be applied easily to existing furnaces during a major repair. As will be seen from an inspection of the figure, the method consists of the inclusion on the inner face of the buckstays of a plate strip extending perhaps 3 inches beyond each buckstay flange and with a suitable angle riveted thereto. In new construction the plate can be so included in the buckstay design as to reduce the I-beam requirements.

The panels, as indicated, consist of an angle frame with the plate riveted thereto. As the only purposes of the plate are to prevent the passage of gaseous fluids and to retain insulating material of light weight, the plate thickness may be nominal. The panels are held in position by such a number of common or drift bolts as may be necessary to register them in position and to insure their tightness.

Section A-A of Fig. 67 indicates the best and most economical application of insulating materials to plane surfaces. E is the silica brick wall. The insulating material, F, behind the buckstays is a material of fair heat resisting properties, but of sufficient strength in crushing effect as to correctly retain the wall thickness. Insulating materials having the proper characteristics for this purpose are relatively expensive and generally should be applied sparingly.

The insulating material, G, being at all times unstressed, may be a less expensive material of higher heat retardent values. When the design shown is applied to the bulkheads, the silica brick of that portion of the wall registering with the panel, customarily is replaced with

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Open Hearth Series To Appear in Book Form; Articles on Hot Rolling Begin Next Week

THIS is the concluding installment of Mr. Buell's unusual study of open-hearth furnace design, which has been appearing in STEEL *continuously since the issue of Oct. 3, 1932.*

The voluntary response from readers has been such as to indicate that the author and publishers will be justified in reprinting the articles in book form. Readers and others who would welcome the appearance of the series in more permanent form are invited to write to the editor of STEEL, *so that we may have a clearer idea of the volume of demand. Suggestions as to additions or omissions in the text matter also will be appreciated.*

Beginning next week, STEEL *will present a short series of articles on the factors influencing rolling pressure and power consumption in the hot rolling of steel. The articles are by Sven Ekelund, eminent Swedish authority, and the translation is by Bengt Blomquist.* THE EDITORS.

either a basic or neutral refractory.

The analysis and synthesis of furnace ends develop a number of important findings. The conclusion of prime magnitude is that the establishment of a suitable area at the knuckle, and the correct design of the throat and uptakes absolutely are essential to ultimate economy. These factors ignore the human factor involved in operation, which principally is responsible for fuel rate and maintenance.

Throat design, jointly with bath and main roof design will be responsible for the production rate of the furnace.

Bulkheads Serve as Indicator

The records of the life of the bulkheads are perhaps the best indicators of the correctness of basic furnace design and / or the quality of manual operation and superintendence. It will be obvious that short bulkhead life, say 100 or less heats, is indicative of both poor design and operation; and that bulkhead life of between 100 heats and anything short of the campaign is indicative of either or both of the enumerated causes to a varying degree. However, bulkheads that last the campaign indicate design and operation of high quality.

Short flame firing is a first step towards improved operating results. Rather than from the use of any particular combustion system this desirable effect will be secured by a sufficient space between the point of fuel injection and the bath to allow a considerable development of combustion over the apron. Directing the air by correct development of the bridge wall so that it comes rapidly into intimate contact with the fuel, is also essential to the development of the short flame.

As with all other components of the furnace the proper use of insulation will create worthwhile economies, both in terms of fuel and of furnace life.

The effective sealing of the furnace ends through plating will improve and tend to stabilize operation and will reduce the infiltration or exfiltration of air and furnace gases, thus reducing the volumes passing through the regenerators and causing them to work more effectively and so decrease the fuel rate.

In order to effect the overall economies possible at and through the furnace ends the designer of new construction or the redesigner of existing equipment must be thoroughly conversant with and able to apply the theory of pneumatics as developing in the ends and pertaining to the gaseous fluids passing therethrough. As is also necessary in connection with the design or redesign of the several components discussed in prior chapters, he must understand thoroughly the properties, and limitations of the materials to be used, and their correct application to the required tolerance inherent to the operating practice.

—THE END—

High-Pressure Hydraulic Cylinders Made from Welded Steel Plates

THROUGH the means of a recently developed improved process of fusion welding, a southern manufacturer of boilers, tanks and steel plate work has introduced a new and economically designed high-pressure hydraulic cylinder.

The Hedges-Walsh-Weidner Co., Chattanooga, Tenn., a subsidiary of the International Combustion Corp., recently shipped 12 welded cylinders to be used for raising and lowering the gates of the new Madden dam in Panama. These cylinders, three of which are shown in the accompanying illustration, were 24 inches inside diameter, about 12 feet long, with finished thickness 1½ inches.

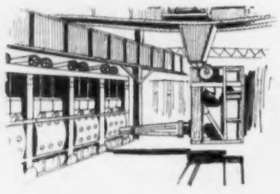
These cylinders are to be equipped with piston rings similar to those used in automobile engines. The inside surfaces were ground, or honed, to a mirror-like finish of extremely close tolerances. Roundness was maintained to within 0.001 inch, plus or minus, at any point and alignment or straightness from end to end was within 0.0015 inch, plus or minus. This close tolerance was necessary to prevent leakage past the piston rings when operating with oil at a pressure of 1000 pounds per square inch.

To make these cylinders, steel plates 1¾ inches thick were rolled and welded by the company's Walsh-Weidner-Weld process. All seams were examined by X-ray.

These high-pressure hydraulic cylinders, three of twelve to be used in raising and lowering the gates of the new Madden dam in Panama, were made from welded steel plates. All welded seams were X-ray inspected

PROGRESS IN STEELMAKING

PRELIMINARY tests on 4 to 6 per cent chrome steel plates in the compartments of an oil tanker showed that this steel pits far less than plain carbon steel commonly used in oil tank construction. Specimens, which have been under test for six months, show the benefits to be gained from 4 to 6 per cent chrome plate. These specimens again will be examined at the end of another six months period.



REDUCTION of 20 to 30 per cent in the fuel costs of reheating, forging and annealing furnaces and a considerable increase in production are possible by the use of recuperators built of steel parts, according to data derived from various plants in Germany. Preheating with heat-resisting steel recuperators gives temperatures up to 1650 degrees Fahr. without any danger and at a large saving in fuel.

♦ ♦ ♦

Tubing with the base metal of ordinary steel and the exterior of stainless quality has been made possible by the development of a forming machine. Both grades of steel in the form of strip are pulled into the rolls, the alloy grade below and the plain steel above, and are cut automatically to the desired length. As the stock progresses, five sets of forming rolls bend the edges of the stainless strip around the plain strip and crimp them. The last set of forming rolls in this group delivers the stock to a second compliment consisting of seven sets of horizontal forming rolls, one set of auxiliary horizontal rolls, and three sets of vertical straightening rolls. When the laminated tubing nears the end of the forming machine it trips a finger which actuates a saw carriage. While the latter moves in synchronism with the tube a circular saw severs the tube to the required length. The jaws, which hold the tube while the cut is being made, now open, the polished tube is delivered to a conveyor and the saw carriage returns to its initial position. The unit has a production of approximately 32 feet a minute. The wall of the tube is made from strip 1 13/16 inches wide and ⅛-inch thick, the stainless layer being 2 inches wide and 0.015-inch thick.

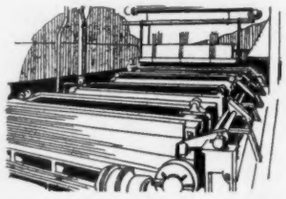
♦ ♦ ♦

Siemensite, a high temperature refractory which was discovered accidentally in Germany in the production of ferrochrome low in carbon by the Haglund electric furnace process, is especially suited for the construction of furnace walls which incline from 55 to 60 degrees. Its high resistance to slags and temperatures increases the life of open-hearth furnaces and reduces the construction cost from 50 to 60 cents per ton of steel to 34 cents, according to tests conducted by German steelmakers. Additional information on this refractory was presented in the April 10, 1933, issue of STEEL, page 30.

PROTECTING ordinary steel nails against climatic and acid deterioration now is being accomplished by fitting them with lead heads. Lead bullets are coined on to the heads of the steel nails in a dial-fed coining press at a rate exceeding 8000 per hour. The nails may be driven with a hammer without distorting the leaded head to any marked extent.

♦ ♦ ♦

One of the benefits derived from washing coal for coking purposes is that it permits the removal of more top and bottom coal from the seam.

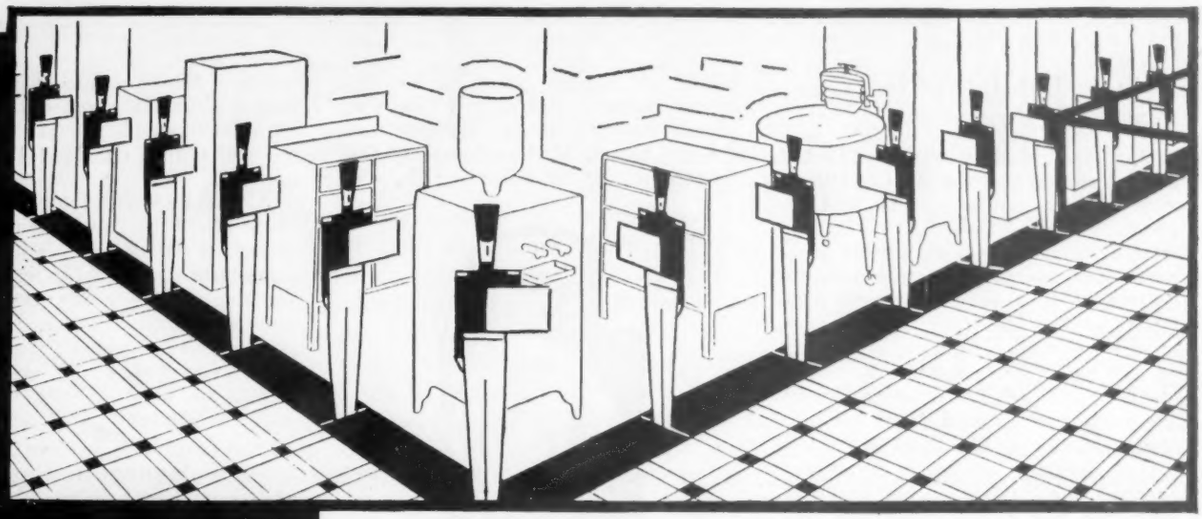


MEASURING the acidity of pickling solutions, testing the uniformity of mill greases and determining the hardness of boiler water are some of the applications of a newly developed sensitive microammeter. The new device measures the electromotive force across two dissimilar metals when these metals are inserted in materials having acid or alkaline reaction. The new unit consists of an indicating instrument with mounting clamp, a set of six pointed electrodes, two knurled chucks for attaching the electrodes to the instrument or to other terminals, and machine screws and nuts for mounting the electrodes in any testing fixture.

♦ ♦ ♦

Sintering at the mines iron ores containing 15 per cent or more moisture, has been found economical inasmuch as the savings in the freight charges frequently cover the aggregate sintering cost. Moreover, the metallic content of the clinkered product is higher than the ore and has a better physical structure.

There Goes the Porcelain Enamel Parade!



Thousands of visitors to A CENTURY OF PROGRESS in Chicago will take away an indelible impression of the familiar Armco trademark. People will look for it when they buy porcelain enameled articles for their homes. If you are not now using the blue and gold Armco label, ask for a supply.

CHOOSE from these

REGULAR ARMCO ENAMELING IRON—dense, uniform, clean-surfaced and firm-bonding, for both flat and drawn work. The original enameling iron, much refined and improved.

CRYSTAL-ETCHED ENAMELING IRON—possessing all the advantages of the regular Armco grades, with a specially-processed surface that insures stronger adhesion and less re-boiling.

ARMCO

PEOPLE will be amazed when they review the Porcelain Enamel Parade at A CENTURY OF PROGRESS—even you veterans of many strenuous enameling campaigns. This exhibit is a splendid interpretation of porcelain enamel's glory, and you can well feel proud of it. ● Wherever you find an exhibit of fine porcelain enameled appliances, a check-up will show that the majority are made of Armco INGOT IRON. This has been true ever since INGOT IRON was first used, many years ago, in a modest little enameling plant in Michigan. ● Although the base iron has remained essentially the same, its bonding and drawing qualities have been highly perfected. Today Armco INGOT IRON is enabling hundreds of enamelers to reduce their production losses and increase their profits. It is logically and *profitably* the first enameling iron of your choice. Specify it on every order.

THE AMERICAN ROLLING MILL COMPANY

Executive Offices: Middletown, Ohio

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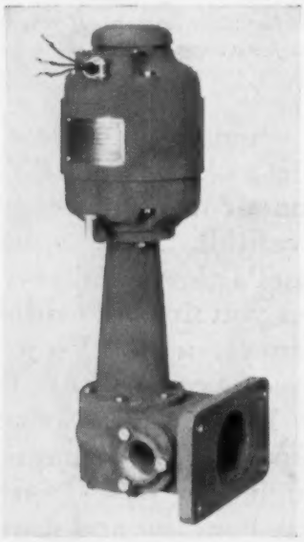
"THE WORLD'S STANDARD ENAMELING IRON"

NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Twin Suction Intake Is Feature of Pumps

Ruthman Machinery Co., Cincinnati, recently added two vertical motor-driven pumps to its line of gusher pumps. Twin suction intake is accomplished by two separate compartments communicating independently with the lower and upper sections of the impeller. The unit shown herewith is designed for out of the reservoir installations. Self-cleaning is effected automatically when the flow is partially or entirely throttled, by an internal agitation which exerts a pressure outwardly through the intakes. This, together with the fact that no bearings are below or in contact with coolant being handled, and that sufficient clearance is provided for grit to pass through harmlessly, enables these pumps to give exceptional service where the coolant is loaded with abrasive.



Ruthman vertical motor-driven gusher pump

◆

Recorder-Indicator Operates On Orsat Principle

Hays Corp., Michigan City, Ind., has developed a new recorder-indicator, shown herewith, which operates on the Orsat principle. A continuous stream of flue gas is drawn rapidly from the last pass of the boiler. At regular intervals the machine takes a measured sample, causes the CO_2 to be absorbed and the pen to record the amount of the absorption, or in other words, the CO_2 content. At the same time the pointer indicates the per cent of CO_2 on a large scale clearly visible at any normal distance. The pen and pointer hold their position after each analysis and change this position only when a change in the CO_2 content of the waste gases occurs.

Hays wall-mounted recorder-indicator

◆

Roll Grinder Combines Precision, Production

Farrrel-Birmingham Co. Inc., Ansonia, Conn., recently developed a heavy-duty 60-inch x 20-foot roll grinder, shown herewith. New features eliminate vibration, promote accuracy of crowning or concaving as well as straight grinding, and give rapid finishing. Headstock is driven through four multiple V-belt drives, three of which are used at one time. A jaw clutch between the two intermediate drives makes it possible to secure a variable speed range from 6½ to 67 revolutions per minute on the roll with a standard 4 to 1 ratio motor.

A backlash eliminating gear has been added to the crowning device which it is claimed automatically eliminates backlash in the gear train rotating the crowning device eccentric, and assures exact synchronism between the wheel carriage and wheel when crowning or concaving a roll.

◆

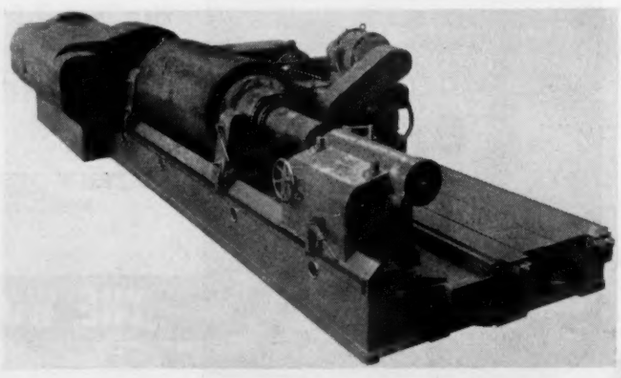
Designs Hydraulic Coupling For Centrifugal Pumps

American Blower Corp., Detroit, is marketing a new hydraulic coupling which makes possible speed control with a constant speed driver. The unit is designed for controlling and varying the speed of centrifugal pumps, and will deliver 130 horsepower at 3600 revolutions per minute. Because of the infinite number of speeds possible with this coupling, the exact speed for any desired load may be obtained readily and without loss of power, it is claimed.

◆

Round Die Screw Plates Placed on Market

Greenfield Tap & Die Corp., Greenfield, Mass., recently introduced a line of round die screw plates, consisting of 20 different sets of commonly used taps, dies, etc., in size ranges 4-36 to 12-24 machine screw and ⅛ to ¾-inch fractional. One of the most popular sets in the line is the No. 3100 containing eleven cutting sizes ¼ to ½-inch NC and NF threads and ⅛-inch pipe size.



FARREL-Birmingham heavy-duty grinder for finishing metal rolls. Features include dead center head and footstocks, flexible face plate drive, centralized controls and multiple V belt spindle drive

ADVERTISING PAGES REMOVED

Steel Rate Holds; Renewed Buying Expected

Large Consumer Requirements in Prospect, as Mills Complete July Specifications — Railroads More Active — Raw Material Shipments Heavy

INCREASING pessimism regarding early effectiveness of the NRA program, relieved to some extent by settlement of the coal strike, has not been reflected as yet in iron and steel demand, which continues to support steelworks operations at 54 per cent.

Though this demand mainly represents requirements specified late last month in advance of price increases, business is holding up much better than usual so far this summer, and steelmakers expect new buying to be considerably larger in the last half of the month than in the first. Consumption in certain lines of finished products, notably sheets, tin plate and wire is displaying remarkable vitality.

A 28 per cent gain in steel ingot production in July lifted the daily average to 128,152 gross tons, highest since June, 1930. A July increase not only is contrary to the customary seasonal trend, but in this instance follows the 34 per cent gain in June over May. Total output for the month was 3,203,810 tons; the steelworks rate 58.9 per cent. The country so far this year probably has produced more steel ingots than in all 1932; for the first seven months 12,193,002 tons, within 1,129,831 tons of the preceding 12.

The more recent slowing trend is manifest to some extent in the United States Steel Corp.'s unfilled orders, which after moving up three consecutive months dropped 86,546 tons, or 4 per cent, to 2,020,123 tons, July 31. A considerable portion of this reduction is due to cancellation of contracts booked at lower prices and not fully specified as required by Aug. 1, this resulting in more solid orders on actual consumer demand. Tonnage since written into new contracts replacing the old in many instances exceeds the amounts canceled.

Uncertainty with respect to prices is contributing to an important extent to the present dearth of new buying. Large consumers, faced with the prospect of paying the same prices as small buyers, are delaying fresh commitments. Action this week on the steel code placing the industry on a more uniform basis is expected to have a stabilizing effect. Recent advances in mill quotations on hot rolled products have been followed by increases of $3 to $6 a ton in revision of warehouse differentials throughout the country.

Demand for raw materials continues strong. Inquiries from several steelworks for heavy tonnages of basic iron have been withdrawn since the coal labor situation has improved. Largely responsive to the settlement in the Connellsville district, foundry coke has followed furnace coke up 50 cents a ton. Pig iron shipments this month are 25 per cent ahead of those in the comparable period in July. Scrap is active, with supplies light.

Uncertainties with respect to industrial codes are exerting a dampening influence on federal and state construction work, closing dates for many jobs throughout the country being postponed. Of the structural shape awards for the week, 7668 tons, 5155 tons are for breweries.

Railroads are laying more rails, from their stocks, than indicated by current purchases. New York Central is reported releasing 8000 to 9000 tons of rails to Chicago mills; Burlington has placed 3500 tons. Of railroad freight cars, steelmakers estimate 15 per cent are in urgent need of heavy repairs; material inquiries are improving. Baltimore & Ohio has closed for one-third of its inquiry for 2500 tons of car parts. Eastern roads are formulating purchase programs, which may include 250 locomotives.

Shipyards have placed approximately 42,000 tons of the 77,000 tons of plates, shapes and bars for 34 war vessels awarded recently. For a southwestern gas line 10,000 tons of steel pipe has been awarded a Milwaukee fabricator.

STEEL's iron and steel price composite this week holds at $30.02; the finished steel composite at $47.50; and the steelworks scrap at $11.58.

Composite Market Averages

	Aug. 12	Aug. 5	One Month Ago July, 1933	Three Months Ago May, 1933	One Year Ago Aug., 1932	Ten Years Ago Aug., 1923
Iron and Steel Composite	$30.02	$30.02	$29.81	$28.45	$29.32	$44.87
Finished Steel Composite	47.50	47.50	47.20	45.10	47.46	68.33
Steelworks Scrap Composite	11.58	11.58	10.66	9.23	6.25	15.90

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, tin plate, nails, sheets, plates, shapes, bars, and black pipe. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

COMPARATIVE PRICES OF IRON, STEEL AND COKE

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	Aug. 12, 1933	July 1933	May 1933	Aug. 1932
Pig Iron				
Bessemer, del. Pittsburgh	18.26	17.86	16.66	15.76
Basic, valley	16.00	15.60	14.40	14.00
Basic, eastern, del, eastern Pa.	17.19	16.79	15.44	13.85
No. 2 foundry, del. Pittsburgh	17.76	17.36	16.16	15.76
No. 2 foundry, Chicago	17.00	16.75	15.90	15.50
*Southern No. 2, Birmingham	13.00	12.60	12.00	11.00
**No. 2X Virginia furnace	18.75	17.75	17.75	17.81
**No. 2X, Eastern, del. Phila.	17.63	17.28	15.95	14.38
Malleable, valley	16.50	16.10	14.90	14.50
Malleable, Chicago	17.00	16.75	15.90	15.50
Lake Superior charcoal, del. Chi.	23.04	23.04	23.04	23.04
Gray forge, del. Pittsburgh	17.13	16.93	16.03	15.63
Ferromanganese, del. Pittsburgh	87.24	84.44	73.24	73.24

*1.75-2.25 silicon. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

Coke				
Connellsville, furnace, ovens	3.00	2.40	1.75	2.00
Connellsville, foundry, ovens	3.50	2.85	2.25	2.90
Semifinished Material				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	26.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	26.00
Billets, open-hearth, Pittsburgh	26.00	26.00	26.00	26.00
Wire rods, Pittsburgh	35.00	35.00	35.00	37.00

	Aug. 12, 1933	July 1933	May 1933	Aug. 1932
Finished Material				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.60
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.91	1.91	1.91	1.91
Iron bars, Chicago	1.65	1.65	1.65	1.65
Shapes, Pittsburgh	1.60	1.60	1.60	1.60
Shapes, Philadelphia	1.81½	1.65	1.65	1.75
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.50	1.60
Tank plates, Philadelphia	1.79½	1.49½	1.49½	1.79½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.65	1.75	1.55	1.70
Sheets, No. 24, hot ann., Pitts.	2.25	2.25	2.00	2.15
Sheets, No. 24, galvan., Pitts.	2.85	2.85	2.70	2.80
Sheets, No. 10 blue anneal., Chi.	1.95	1.95	1.75	1.85
Sheets, No. 24 hot ann., Chicago	2.40	2.40	2.20	2.35
Sheets, No. 24 galvan., Chicago	3.00	3.00	2.85	3.00
Plain wire, Pittsburgh	2.10	2.10	2.10	2.20
Wire nails, Pittsburgh	2.10	2.05	1.85	1.95
Tin plate, per base box, Pitts.	4.25	4.25	4.25	4.75
Scrap				
Heavy melting steel, Pitts.	$13.75	12.70	11.65	8.55
Heavy melting steel, eastern Pa.	12.00	10.55	9.00	6.37½
Heavy melting steel, Chicago	10.50	10.45	8.70	5.40
No. 1 wrought, eastern Pa.	13.00	11.60	10.25	6.25
No. 1 wrought, Chicago	10.35	10.20	8.10	4.50
Rails for rolling, Chicago	11.25	11.15	10.25	6.50

Sheets

Shipments Continue Heavy, But New Specifications Are Slower— Test on Prices Expected Shortly

SHEET PRICES, PAGE 47

Pittsburgh—Producers have almost entirely cleaned up the specifications entered late in June at prices beneath the present market, and are prepared to accept specifications by important buyers at the new price levels. This new schedule calls for Pittsburgh bases of 2.25c on black, 2.85c on galvanized; 1.65c on blue annealed; 2.15c on No. 10 and 2.60c on No. 20 full-finished. A declining trend is noted in new orders.

Chicago—Sheet production continues above 60 per cent and backlogs have been reduced but little over recent weeks. Automotive consumption has been heavy and continues an important factor in maintaining total business. Shipments to steel barrel fabricators also are holding well. Operations of farm implement manufacturers continue light and sheet requirements remain poor. Prices are steady.

Cleveland — Practically all the heavy automotive sheet specifications released late last month have been worked out, and new orders from the industry are slower. From capacity operations mills here and in an adjacent lake district have dropped to around 75 per cent. Refrigerator requirements also are down; little is developing from metal furniture manufacturers. Some Ohio mills making a diverse line of sheets, however, are booked at capacity well into September, and recently have lost some business to other producers able to give immediate delivery. The market is firm, with 2.25c generally applying to new sales of black sheets, and 2.60c to No. 20 autobody.

Orders for 50,000 steel beer cases to cost $40,000, and for $58,000 worth of steel beer kegs requiring a substantial tonnage of sheets and strip have been booked by the Truscon Steel Co. for fabrication at its Cleveland plant.

Boston—Sheet prices are firm, resisting pressure for concessions on substantial volume of blue annealed for early delivery. Mills are not taking business for last quarter shipment and are pressed for delivery on orders placed several weeks ago. Jobbers have specified fairly well, one placing several hundred tons of blue annealed and galvanized. Industrial buyers are taking full shipments against contracts and the bulk of tonnage is going directly into fabricated goods, largely of a consumer type.

New York — New sheet specifications have declined sharply, although releases against old contracts still are coming out freely. Sellers are having trouble meeting delivery schedules, a situation due in part to difficulties in breaking in new workers at the mills. Galvanized sheets are fairly steady at 2.85c, Pittsburgh; black sheets at 2.25c; and No. 10 hot rolled at 1.65c, with carload shipments taking a 35-cent freight rate. Cold rolled sheets, mill run, are largely nominal at 1.95c, Pittsburgh, for No. 10, and 2.40c for No. 20.

Philadelphia—Continued quiet in new sheet demand is enabling producers to get caught up on deliveries. Most mills, however, still are behind. Prices are unchanged, but the tone of the market is easier.

Cincinnati—Sheet mills in this district are continuing production schedules near the July figure, but new business has dropped. Automotive demand is in lighter volume and specifications for refrigerators have been curtailed.

Birmingham, Ala.—Sheet mills maintain their recent production rates and shipments are steady. Demand will warrant continuation of present operations for at least several weeks.

CURRENT FINISHED STEEL PRICES

Delivered prices subject to freight surchage corrected to nearest ½c. Asterisk denotes price change this week

Sheet Steel

HOT ROLLED No. 10
(24 to 48 inches wide)

Pittsburgh, base	1.65c
Chi. dist. mills	1.75c
Chicago, del.	1.80c
New York, del.	2.00c
Birm., base	1.80c
Phila., del.	1.96c
St. Louis, del.	1.84c

HOT ROLLED ANN. No. 10

Pittsburgh, base	1.80c
Chi. dist. mills	1.90c
Chicago, del.	1.95c
Phila., del.	2.11c
New York, del.	2.15c
St. Louis, del.	1.99c
Birm., base	1.95c
San Fran., c.i.f.	2.27½c

HOT ROLLED ANNEALED No. 24

Pittsburgh, base	2.25c
Chi., dist. mills	2.35c
Chicago, del.	2.40c
New York, del.	2.60c
Phila., del.	2.56c
Birm., base	2.40c
St. Louis, del.	2.59c
San Fran., c.i.f.	2.90c

GALVANIZED No. 24

Pittsburgh, base	2.85c
Chi. dist. mills	2.95c
Chicago, del.	3.00c
Phila., del.	3.16c
New York, del.	3.20c
Birm., base	3.00c
St. Louis, del.	3.19c
San Fran., c.i.f.	3.50c

TIN MILL BLACK No. 28

Pittsburgh, base	2.50c
Gary, base	2.60c
St. Louis, del.	2.84c

MILL RUN COLD-ROLLED No. 10

Pittsburgh, base	1.95c
Chicago, del.	2.10c
Philadelphia, del.	2.26c
New York, del.	2.30c

No. 20

Pittsburgh, base	2.40c
Chicago, del.	2.55c
Philadelphia, del.	2.71c
New York, del.	2.75c

AUTO. AND FURNITURE

Pittsburgh, No. 10	2.15c
Pittsburgh, No. 20	2.60c

ENAMELING SHEETS

Pitts., No. 10	2.40c to 2.45c
Pitts., No. 20	2.90c

Tin and Terne Plate

Per 100-lb. box, Pittsburgh

Tin plate, coke base, contract	$4.25
Do., stock	3.75
Long ternes, No. 24 unassorted	2.90c

Gary base, 10 cents higher.

Corrosion, Heat Resistant Alloys

Base, Pittsburgh

18% chrome, 8% nickel sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold Strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Steel Plates

Pittsburgh, base	1.60c
New York del.	1.90c
Phila., del.	1.79½c
Boston, del.	2.02c
Buffalo, del.	1.85½c
Chicago, base	1.70c
Cleveland, del.	1.80½c
Birmingham, base	1.75c
Coatesville, base	1.70c
Sparrows Point, base	1.70c
Pacific Coast, c.i.f.	1.75c
St. Louis, del.	1.94c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, del.	1.81½c
New York, del	1.87c
Boston, del.	2.00½c
Bethlehem base	1.70c
Chicago, base	1.70c
Cleveland, del.	1.80½c
Lackawan., base	1.70c
Birmingham, base	1.75c
Pacific Coast, c.i.f.	2.10c
Do., wide flange	2.20c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, base	1.75c
Lackawan., base	1.70c
Pacific Coast ports, c.i.f.	2.10c
Cleveland, base	1.65c
Philadelphia, del.	1.91c
New York, del.	1.95c
Boston, del	2.00½s
Pitts., cold finish	1.70c
Pitts., forg. qual.	1.75 and 1.85c

RAIL STEEL

Pitts., Buff.	1.50c
Chicago, base	1.50c
Eastern mills	1.50c

IRON

Chicago, base	1.60c to 1.70c
Philadelphia, base	1.60c
Pitts., refined	2.70c to 4.20c

REINFORCING

New billet steel, Chi., Pitts., Buff., Cleve., Birm. (cut lengths)	1.75c
Phila., cut lengths	1.86c

Wire Products

(Prices apply on carload lots. Mixed carloads 10 cents higher; joint carloads up 20 cents; less carloads up 30 cents. Nail extras subject to 10 per cent discount on straight or mixed carload shiped to single consignee.)

F.o.b. mills, 100 lb. keg

Standard wire nails	$2.10
Cement coated nails	2.10
Galvanized nails	3.60

(Per pound)

Polished staples	2.80c
Galvanized fence staples	3.05c
Barbed wire, gal.	2.60c
Annealed fence wire	2.25c
Galvanized wire	2.60c
Woven wire fencing (base column, c.l.)	$55.00

(To Manufacturing Trade)

Plain wire, 6-9 ga	2.10c

Anderson, Ind., and Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Spring wire	3.10c

Chicago and Waukegan $1 higher, Worcester $2 higher.

Cold-Finished Bars

Base Pitts., one size, shape, grade, shipment at one time to one destination

10,000 to 19,999 lbs	1.95c
20,000 to 59,999 lbs	1.90c
60,000 to 99,999 lbs	1.85c
100,000 lbs. and over	1.82½c

Chicago, Cleveland, Buffalo 5c higher; Detroit, 20c; eastern Michigan 25c.

Shafting

(Turned and ground)

Cumberland, Md., base

*1⅛-inch	3.25c
*1 3/16 to 1½-inch	2.75c
*1 9/16 to 1 7/8-inch	2.60c
*1 11/16 to 2⅞-inch	2.45c
*2 1/16 to 6-inch	2.30c

Alloy Steel

Hot rolled, f.o.b. Pittsburgh, Buffalo, Chicago and Massillon, O. Base 2.45c to 2.65c. Differentials to various classes of consumers.

Alloy	Diff.	Alloy	Diff.
S.A.E.		S.A.E.	
2000	0.25	3100	0.55
2100	0.55	3200	1.35
2300	1.50	3300	3.30
2500	2.25	3400	3.20

4100 .15 to .25 Mo	0.50
4600 .20 to .30 Mo. 1.25-1.75 Ni.	1.05
5100 .80-1.10 Cr.	0.45
5100 Cr. spring	0.20
6100 bars	1.20
6100 spring	0.95
Cr., Ni., Van.	1.50
Carbon van.	0.95
9250 (flats)	0.25
9250 (rds., sq.)	0.50

Strip, Hoops, Bands

Hot-rolled strip up to 23 15/16-in. wide, Pitts.	1.65c
* Do., Chicago	1.75c
Do., del. Phila.	2.01c to 2.06c
Do., del. N. Y.	2.05c to 2.10c
Cooperage hoop, Pittsburgh	1.75c
Do., Chicago	1.85c
Cold-rolled strip Pitts., Cleve.	2.25c
Worcester, 3 tons or over	2.45c

Rails, Track Material

Stand. rails, mill	$40.00
Relaying rails, Pitts., 20-45 lbs.	$23.00
50 to 75	$20.00
80 to 100	$23.00 to 24.00
Light rails, 25-45, mills	$30.00
Light rails, Chi.	$32.00
Angle bars, mills	2.55c
Spikes, boat, Pitts.	2.65c
*Track bolts, base	3.40c
*Tie plates, Pitts.	1.90c
*Tie plates, Chi.	1.90c

Base, railroad spikes 200 kegs or more; base tie plates, 20 tons or more; differentials for less.

Rivets, Wrought Washers

Struc. c.l., Pitts-Cleve.	2.50c
Struc., c.l., Chi.	2.60c
7/16-in. & smaller, Pitts., Chi., Cleve.	70, 10 and 5 off
Washers, c.l., Pitts. dist.	7.35 off
Do., Chi. dist.	7.00 to 6.75 off

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots, Dec. 1, 1932, lists.

CARRIAGE BOLTS

All sizes, cut thread	73 off
Rolled thread, ½ x 6 and smaller	73 off
Eagle list	73 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 73 off

Tire bolts	60 off
Stove bolts, 72½-25-10 off in pkgs.; 85 off in bulk, 5000 or more of a size.	
Rolled thread machine bolts, ½ x 6 and smaller, 73 off.	

NUTS

Semifinished	73 off

HEXAGON CAP SCREWS

Milled	85 off
Upset 1-in., smaller	85-10 off

SQUARE HEAD SET SCREWS

Upset, 1-in., smaller	80 off
Upset, larger than 1-in.	80 off
Headless set screws	75-10 off

Cut Nails, Piling

Cut nails, Pitts.; (10% discount on size extras)	$2.65
Do., less carloads, 5 kegs or more; no discount on size extras	$2.90
Do., less than 5 kegs; no discount on size extras	$3.05
Steel piling, Pitts.	1.90c
*Steel piling, Buff.	2.00c
*Steel piling, Chi.	2.05c

Pipe and Tubing

Base $200 net ton, except on standard commercial seamless boiler tubes under 2 inches and cold drawn seamless tubing.

Welded Iron, Steel Pipe

Base discounts on steel pipe, Pittsburgh and Lorain, O., to consumers in carloads, Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago delivered, 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

Steel

In.	Blk.	Gal.
¼ and ⅜	57	38½
½	62	50½
¾	65½	55½
1—3	67½	58½

Iron

½	31½	15
¾	36½	20½
1—1¼	39½	25½
2	41½	26

LAP WELD

Steel

2	63½	54½
2½—3	66½	57½
3½—6	68½	59½
7 and 8	67½	57½
9 and 10	67	57
11 and 12	66	56

Iron

2	37	22½
2½—3½	38	25
4—8	40	28½
9—12	38	24½

(*Please turn to next page*)

RAW MATERIAL PRICES

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4, 1932, except Buffalo del. at Boston. Asterisk denotes price change.

LINE PIPE

Steel

⅛-inch, butt weld	50½
¼—⅜, butt weld	56
½, butt weld	61
¾, butt weld	64½
1—3, butt weld	66½
2-inch, lap weld	62½
2½—3, lap weld	65½
3½—6, lap weld	67½
7—8, lap weld	66½
9—10, lap weld	66
11—12, lap weld	65

Iron

⅛—1½ inch, black and galv. take 4 pts. over; 2½—6 inch 2 pts. over discounts for same sizes, standard pipe list. 8—12 inch no extra. 2-inch line discount unchanged from list prior to April 15, 1933.

BOILER TUBES

C. L. Discounts, f.o.b., Pitts.

Lap Weld Steel		*Charcoal Iron*	
2—2¼	33	1¾	8
2½—2¾	40	2—2¼	13
3	47	2½—2¾	16
3¼—3¾	50	3	17
4	52	3¾—3½	18
4½—6	42	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Quantity discounts, same as for hot rolled below. Charcoal Iron—Under 10,000 pounds; 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

Cold Drawn

2—2¼	27	3¼—3½	44
2½—2¾	34	4	46
3	41	4½, 5, 6	36

(On 1—1¾-inch sizes mechanical tubing discounts apply.)

Hot Rolled

2—2¼	33	3¼—3½	50
2½—2¾	40	4	52
3	47	4½, 5, 6	42

Quantity discounts are: Under 10,000 pounds, 10 points and 5 per cent; 10,000 to 24,999 pounds, 6 points and 5 per cent; 25,000 pounds to carload, 2 points and 5 and 5 per cent; carload and over, base discount and 5 and 5 per cent. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount.

Seamless Tubing

Cold drawn; f.o.b. mill disc.

100 ft. or 150 lbs.	40%
15,000 ft. or 22,500 lbs.	70%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

6-in. & over, Birm.	$35.00-36.00
4-in., Birm.	38.00-39.00
4-in. Chicago	46.40-47.40
6 to 24-in. Chicago	43.40-44.40
6-in. & over, N. Y.	32.00-34.50
4-in. New York	34.50-36.50

Class A pipe $3 over Class B.

Stand. fitgs., Birm. base	$90.00

Six to 24-inch, fittings, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Pig Iron

Per Gross Ton

FOUNDRY NO. 2

Chicago, furnace	$17.00
Pitts., dist. fur.	17.00
Pittsburgh, del.	17.63-18.13
Valley furnace	16.50
Cleve. fur., loc. del.	16.50
Philadelphia, del.	17.26
Virginia furnace	17.25
Granite City, Ill.	17.00
St. Louis, del.	17.85
Buff., fur., local del.	17.00
*Buffalo, del. Bost.	18.50
Buff., del. Brook.	18.77
Buff., del. Newark.	17.89
Ala., Birmingham.	13.00
Ala., del. Chicago.	17.16
Ala., del. St. Louis.	17.35
Ala., del. Cincinnati	17.51
Ala., Phila., dock	18.12-18.37
Ala., Balt., dock del.	18.12
Ala., N. Y. dock	18.62
Ala., Bost. dock del.	18.62-18.87
Tenn., Bir. base	14.00
Tenn., del. Cinci.	17.51
Montreal, del	22.00
Eastern, del. Phila.	17.76

FOUNDRY NO. 2X

Buff., fur., local del.	17.50
Buff., del. Brook.	19.02-19.27
Do., Newark	18.14-18.39
*Buffalo, del. Bost.	18.75-19.00
Virginia furnace	17.75
Eastern, del. Phila.	17.51-17.76

FOUNDRY NO. 1X

Buff., fur., local del.	18.00
Eastern, del. Phila.	18.01-18.26
Buff., del. Brook.	19.52-19.77
Buff., del. Newark.	18.64-18.89

MALLEABLE

Valley furnace	16.50
Cleve. fur., loc. del.	16.50
Pittsburgh dis. fur.	17.00
Pittsburgh, del.	17.63-18.13
Chicago, furnace	17.00
Buff., fur., loc. del.	17.50
Eastern Pa., del.	18.13-19.91
Granite City, fur.	17.50
Montreal del.	22.50
Toronto, delivered	21.00

BASIC

Pitts., dist. fur.	16.50
Pittsburgh, del.	17.13-17.63
Eastern Pa., del.	17.00-17.25
Buff., fur., loc. del.	16.50-17.00
Montreal, del.	22.00
Valley, furnace	16.00

BESSEMER

Valley furnace	17.00
Pittsburgh fur.	17.50
Pittsburgh, del.	18.13-18.63

LOW PHOS.

Valley fur. stand.	25.00
Phila., standard	25.76-26.79
Copper, bear., E. Pa. furnace	24.00-25.00

GRAY FORGE

Valley furnace	16.25
Pitts., dist. fur.	16.50
Pittsburgh, del.	17.13-17.63

CHARCOAL

Lake Sup., del. Chi.	23.04

SILVERY

Jackson County, O., or Pittsburgh furnace; 6%—$20; 7—$20.50; 8—$21.00; 9—$21.50; 10—$22; 11—$23.

BESSEMER FERROSILICON

Jackson County, O., or Pittsburgh furnace: 10%—$23; 11—$23.50; 12—$24.00; 13—$24.50; 14—$25.00; 15—$25.50; 16—$26.00.

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bess.	$4.30
Mesabi bessemer	4.65
Old range nonbess.	4.65
Mesabi nonbess.	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents, unit, del. E. Pa.

Foundry and basic, 56-63%, con. (nom.)	8.00- 9.00
Cop-free low phos. 58-65% (nom.)	10.00-10.50

FOREIGN ORE

Cents per unit, f.a.s. Atlantic ports (nom.)

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.50
No. Afr. low phos.	7.00
Swedish basic, 65%	8.00
Swedish lo wphos.	8.50
Spanish, No. Afr. basic, 50 to 60%.	7.00
Tungsten, spot, sh. ton unit, duty pd.	$12.00-12.50
N. F. fdy., 55%	7.00
Chrome ore, 48% gross ton c.i.f.	$17.00-18.00

Manganese Ore

(Nominal)

Prices, not including duty, cents per unit, cargo lots.

Caucasion, 52-55%	22.00
So. African, 52%	21.00-22.00
So. Afr., 49-51%	20.00-21.00
Indian, 48-50%	nominal

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pa., Ohio, Ill., Ky., Md., Ga., Mo.	$45.00
Alabama	48.00

Second Quality

Pa., Ohio, Ill., Ky., Md., Mo., Ga., Ala.	40.00

MALLEABLE BUNG BRICK

All bases	50.00

SILICA BRICK

Pennsylvania	$45.00
Joliet E. Chicago	54.00
Birmingham, Ala.	55.00

MAGNESITE BRICK

Per Net Ton, 9 x 4½ x 2½

Burned	$65.00
Unburned	55.00

CHROME BRICK

Per Net Ton

F.o.b. ship. point	$45.00

MAGNESITE

Dead burned grain, Chester, Pa., Baltimore bases, net	40.00
Domes, Chewelah, Wash., base	22.00

Fluorspar

85 to 5 per cent grade

Washed gravel, duty paid, tide, gross ton	$20.00
Washed gravel f.o.b. Ill., Ky., net ton, carloads	$14.00

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pitts., Chi., Cleve., open-hth. & bess.	$26.00
Philadelphia	31.75
Forging, Pitts., Chi.	31.00

SHEET BARS

Pitts., Cleve., Yong.	26.00
Chicago	26.00

SLABS

Pitts., Cleve., Yong.	26.00

WIRE RODS

Pitts., Cleveland	$35.00
Chicago	36.00

SKELP

All grades, Pitts.	1.60c

Coke

Price Per Net Ton

BEEHIVE OVENS

Connellsville fur.	$3.00- 3.50
*Connellsville fdry.	3.50- 3.75
*Connell. prem. fdry.	4.50
New River fdry.	6.00
Wise county fdry.	4.25- 5.00
Wise county fur.	3.50- 4.25

BY-PRODUCT FOUNDRY

Newark, N. J., del.	8.21- 8.81
Chi. ov., outside del,	7.50
Chicago, del.	8.25
New England, del.	10.00
St. Louis, del.	7.75
*Birmingham, ovens	4.50
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	5.00
Portsmouth, ovens, Connel. basis	5.00
Buffalo, ovens	7.50- 8.00
Detroit, ovens	8.00
Philadelphia, del.	8.50

Ferroalloys

(In dollars, except Ferrochrome)

Ferromanganese, 78-82% tidewater, duty pd.	82.00
del. Pitts.	87.24
Spiegeleisen, 19-20%, dom., fur., spot†	27.00
Ferrosilicon, 50%, frieght all., c. l.	74.50
Do, less carload	82.50
Do, 75 per cent. Spot, $5 a ton higher.	120-130.00
Silicomang., 2½ carb.	85.00
2% carbon	90.00
1% carbon	100.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb. con. del.	9.50
Do, spot del.	10.00
Ferrotungsten, stand., lb. cont.	1.04 -1.10
Ferrovanadium, 35 to 40%, lb. cont., on analysis	2.60- 2.80
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	3.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, c. l. 17-19%, Rockdale, Tenn., basis; 18%, $2 unitage	42.00
Ferrophosphorus, electrolytic, per ton c. l., 23-26% f.o.b. Anniston, Ala., 24% $2.50 unitage	55.00
Ferromolybdenum, stand. 50-60%, lb	0.95
Molybdate, lb. cont.	0.80

†Carloads. Diff. to apply to quantity.

Bars

Strong Situation as Users Seek To Cover—Speculation Is Held Down—Price Strong

BAR PRICES, PAGE 47

Pittsburgh—The advance in bars Aug. 1 to 1.60c base, Pittsburgh, for preferred buyers, drove in considerable specifications. Many of these were being entered last week, although the orders carried dates prior to Aug. 1. The amount of hot-rolled bar buying was held down considerably by the disposition of mill credit departments to cut down the tonnages which buyers wanted. The refusal of banks to finance preferred buyers' stocks of steel not immediately required, also proved a restraining factor. The alloy bar market is unchanged with quotations based on either 2.45c or 2.65c, mill bases.

Cleveland—Demand for steel bars is holding up relatively better than for other heavy finished steel, though automotive specifications are down sharply. Several fairly substantial orders were booked here in the week at 1.65c base, Cleveland. Some pressure has developed from large consumers for preferential prices, especially since Chicago producers are understood to be waiving the Pittsburgh differential and quoting 1.60c for attractive tonnage. More makers have discontinued the classification of forging quality bars as "commercial" or "guaranteed", and now quote only one, forging quality bars, at 1.85c, base, Pittsburgh, and 1.90c, base, Cleveland, the top price formerly quoted on guaranteed quality.

Chicago—No change in the steel bar price situation is expected to develop before approval of the steel industry code. Producers continue to quote only on prompt business, with the market nominally 1.70c, Chicago. A firmer situation exists in the matter of extreme preferential prices previously quoted. Sales and specifications are well maintained for this period. Automotive demand has not declined to any marked extent, though September is expected to show lighter requirements. Orders from the farm implement industry still are relatively light. Implement business consists principally of repair orders and although inquiries have improved and the outlook is more favorable, some manufacturers still have fairly large stocks of finished equipment.

Boston—Since commercial steel bars have been firm at 1.60c, Pittsburgh, in this market for some time little business was driven in by firming to that figure in other districts. Buying by bolt and nut makers is moderately active.

New York—Jobbers having covered substantially in July, a decline in specifications for commercial steel bars is noted by mill representatives here. Manufacturers' orders also are fewer except in the case of bolt and nut manufacturers, possibly the largest single consuming group in this district. Their contracts were placed largely at the end of last quarter, so they figure little in current demand. Commercial steel bars are steady at 1.60c, Pittsburgh, or 1.95c, New York. Common iron bars still are available at 1.50c, Jersey City, base.

Blanket contracting has not yet disappeared but a firmer policy is expected with the adoption of the steel code.

Philadelphia—Apart from tonnages for naval ships recently awarded steel bar specifications are slower. Prices are firm at 1.60c, Pittsburgh, but iron bars are easy at 1.60c, base, Philadelphia.

Plates

Buying for Navy Needs High Point of Market — Brewery Tanks Also Important Outlet

PLATE PRICES, PAGE 47

Pittsburgh—The market has been stronger since the first of the month and producers are uniformly quoting 1.60c, Pittsburgh, to all users regardless of tonnage. Preferential contracts at 1.50c, Pittsburgh, and in some instances less, were specified against rather freely ten days ago and even through last week specifications for July 31 date were being received and entered by mills here. Now a determination is evident that 1.60c is to be the market. Gulf Refining Co., Pittsburgh, has bought tanks requiring 365 tons of plates from the Chicago Bridge & Iron Works, Chicago. The tanks are to be erected at Brewster Junction, Me., and fabrication will be at the Greenville, Pa., shops of the Chicago company. Plans of the Standard Steel Car Co., Butler, Pa., to repair 100 Montour railroad cars may result in need for several hundred tons of car plates. About 3000 tons of armor plate are expected to be rolled at the Homestead works here for recently awarded navy contracts. One hundred fifty steel sill plates are to be bought by the Pittsburgh federal engineers.

Chicago—Brewery needs lead in tank work, and plate requirements for this purpose have been more active than for oil. Among recent beer tank awards is 700 tons for a Detroit brewery. Inquiries and prospective work indicate the brewing industry will supply fairly substantial plate demand for several months with some interests predicting good business will continue from this source for more than a year. Railroads are taking moderately larger plate tonnages for repair work but new equipment building is quiet. Oil companies continue inactive in plate purchases.

Cleveland—New plate orders are coming chiefly from small consumers, large users having covered late in July for requirements over the remainder of the quarter, shipments continuing to them in good volume. Some boiler fabricaters are more active. Demand for brewery tanks is sustained fairly well. Interest here centers in 2500 tons for Cleveland watermains, bids on which now are being tabulated. The market is firm at 1.60c, base, Pittsburgh.

Boston—Plates for naval vessels to be built in private yards are being placed, about 3500 tons in addition to the Bethlehem contracts being contracted. Much of the tonnage will be galvanized. Miscellaneous demand is active in spite of the large tonnage recently driven in by impending advances. The price is firm at 1.70c, Coatesville, Pa.

New York—Placing of 15,000 tons by the Newport News Shipbuilding & Dry Dock Co. for two airplane carriers features the market in steel plates. In addition 7000 tons of shapes and bars were awarded. Most of this went to Carnegie Steel Co., Pittsburgh, with the remainder to Bethlehem Steel Co., Bethlehem, Pa. Miscellaneous plate buying is off sharply, many consumers covered at lower prices prevailing before Aug. 1.

Philadelphia—Plate buying by shipyards is the feature of this market. New York Shipbuilding Co., Camden, N. J., is reliably reported to have placed 14,000 tons of plates, shapes and bars for two light cruisers

with Carnegie Steel Co. and 3300 tons for four destroyers with Bethlehem Steel Co. General demand is quiet with the market 1.70c, Coatesville, Pa.

Rustless Iron Co. of America, Baltimore, and Crucible Steel Co. of America, New York, have been awarded floor plates for navy vessels on which bids were taken July 28. A low bid by another maker was rejected as not meeting requirements.

Contracts Placed

3500 tons, two destroyers, Bath Iron Works, Bath, Me., and two submarines, Electric Boat Co., Groton, Conn., to two eastern Pennsylvania mills.

800 tons, tanks for Hittleman Brewery, Staten Island, N. Y., to Buffalo Tank Corp., Staten Island, N. Y.

700 tons, tanks, Pfeiffer Brewing Co., Detroit, to Chicago Steel Tank Co., Chicago.

625 tons, tanks, J. F. Trommer brewery, Orange, N. J., to Buffalo Tank Corp., Lackawanna, N. Y.

500 tons, brewery tanks, Houston, Tex., to Petroleum Iron Works, Sharon, Pa.

365 tons, several tanks, Brewster Junction, Me., for Gulf Refining Co., Pittsburgh, to Chicago Bridge & Iron Works, Chicago.

300 tons, brewery tanks for Fred Miller Brewing Co., Milwaukee, to Heil Co., Milwaukee.

100 tons, oil barge, Boston, to Joseph T. Ryerson & Son Inc., Boston; eastern Pennsylvania mill rolling plates.

100 tons, additional tanks, Croft brewery, Boston, Mass., to Acme Co., Boston; eastern Pennsylvania mill rolling plates.

Contracts Pending

1174 tons, navy, two submarines, Portsmouth, N. H., Worth Steel Co., Claymont, Del., low on 407 tons at 2.48c, delivered. Youngstown Sheet & Tube Co., Youngstown, O., and Central Iron & Steel Co., Harrisburg, Pa., tied for low on most of remainder at 2.37c, delivered. Enterprise Galvanizing Co., Philadelphia, low on galvanized plate items at 4.195c and 4.145c; bids Aug. 8.

225 tons, lighthouse tenders, HOLLYHOCK and TAMARACK; bids Sept. 7, commissioner of lighthouses, Washington.

Railroads

Burlington Places Rails; Car Repair on Increase

Track Material Prices, Page 47

Enlarged betterment programs by railroads, including cars, locomotive and roadbed are bringing increasing needs for steel in various forms. Rail buying is not much of a factor at present, as roads are busy laying rails previously bought, some on 1932 contracts. The Chicago, Burlington & Quincy has placed 3500 tons of rails with the Colorado Fuel & Iron Co. A rail rolling is expected to be started at the Edgar Thomson mill of Carnegie Steel Co. at Homestead, Pa., late in August. Chicago rail mills are rolling on a low schedule on small lots. New York Central is expected to release 8000 to 9000 tons of rails, probably to Chicago mills, soon.

Standard Steel Car Co. will repair 100 gondolas for the Montour railroad at its shops at Butler, Pa., requiring several hundred tons of steel. Baltimore & Ohio has distributed about $40,000 worth of car parts among Youngstown Steel Car Corp., Niles, O., Bethlehem Steel Co., Bethlehem, Pa., Standard Steel Car Co., Pittsburgh, Greenville Steel Car Co., Greenville, Pa.; American Car & Foundry Co., New York., and Magor Car Corp., New York. This represents about one-third of its requirements. Several roads are in the market for large tonnages of repair material.

Missouri Pacific announces a program involving $3,100,000 for maintenance of way structures and equipment in August, an increase of $150,000 over July.

While reports that about 250 locomotives may be bought this fall are indefinite, locomotive builders say some carriers are starting work on specifications. New York Rapid Transit, which recently placed contracts for an articulated train of aluminum, is reported considering a similar unit of stainless steel.

Rail Orders Placed

Chicago, Burlington & Quincy, 3500 tons rails to Colorado Fuel & Iron Co., Denver.

Strip

Buying Lessened But Needs Point to Early Renewal

Strip Prices, Page 47

Pittsburgh — Prices on hot and cold-rolled strip are firmly based on 1.65c and 2.25c, respectively, on all new business but lower priced contracts are not yet entirely finished. Buying is considerably less than through most of June and July. In some cases orders have been entirely specified, which points to a renewal of a buying trend shortly. Cooperage hoop is quoted 1.75c base, Pittsburgh.

Cleveland — Automotive requirements still dominate in the strip steel market. Several substantial orders from the industry were booked during the week, though the general volume of buying is lighter. Mills have good backlogs for the remainder of this month. Cold-rolled strip is firm at 2.25c, base, Cleveland; and hot-rolled, 1.65c, Pittsburgh.

Boston—Cold-rolled strip mills are catching up on deliveries and operations approximate 65 to 70 per cent. Cold-rolled strip at 2.45c, Worcester, has not been extensively tested. Little has been sold beyond this quarter. Most mills covered their trade through September at 2.10c to 2.20c, Worcester. Extent of the firmness of the Pittsburgh price at 2.25c, on future business, depends success of New England producers in getting 2.45c, Worcester. Little new business is being done on hot-rolled.

New York—Reasonable firmness is manifested in cold-rolled strip at 2.25c, Pittsburgh; on hot strip, the going market of 1.65c, Pittsburgh, is being shaded $1 a ton in some instances. Contract shipments are well maintained, but new orders are slowing up, attributed in a measure to coverage by many larger consumers for practically the entire quarter.

Philadelphia—Steel strip has undergone a substantial decline with published prices fairly steady.

Chicago—Strip shipments are unusually steady for this period and while buying from some industries shows signs of tapering, backlogs remain fairly heavy. Automotive requirements are expected to moderate next month but currently are well maintained. Hot strip generally is 1.75c, Chicago, with cold-rolled strip nominally 2.25c, Pittsburgh-Cleveland.

Tin Plate Mills Booked Up to Late October

Tin Plate Prices, Page 47

Pittsburgh — Tin mills here still are operating at 95 per cent. Two inquiries were in the market last week for 10,000 base boxes each, but the deliveries asked by the buyers were such that mills could not meet them. Tin mill rolling schedules are now being formulated for the third week in September which means that it will be a month later, or the third week in October, before orders received today can be delivered. By the end of July, mills generally in this district had shipped more tin plate in seven months than all 1932. The price situation is unchanged. Probably the absence of competition for tin mill black makes the price especially firm at 2.50c base, Pittsburgh. Standard tin plate holds at $4.25 per base box.

BREWERIES

A MARKET FOR TONCAN IRON

Metal jobbers and equipment manufacturers are finding the brewing industry a live market for Toncan Iron in many forms—sheets, plates, pipe and boiler tubes.

Old plants are being modernized. New plants are under construction. And the demand for Toncan Iron is based on past experience that this modern alloy of refined iron, copper and molybdenum grows old slowly, because it possesses a rust resistance surpassed among the ferrous metals only by the stainless alloys.

The applications of Toncan Iron Sheets are legion—roofing, siding, eaves troughs, conductors, vats, tanks, pasteurizing and steaming trays, pails, truck bodies and grain chutes. In several of the large Milwaukee breweries a large tonnage of Toncan Iron Sheets is being used in malt houses for blow pipe construction and for ventilating applications in refrigerating systems. Toncan Iron Plates find service in brine tanks, condenser shells, boilers and stacks. Toncan Iron Pipe and Boiler Tubes are specified by many brewery engineers. And Toncan Galvannealed is already in use in thousands of signs heralding to a thirsty public the return of the legalized brew.

With $400,000,000 estimated to be spent in the near future by the brewing industry, there can be no uncertainty about the fact that there already exists a real market for the sale of Toncan Iron. Your share will depend on your ability to fill the needs of the industry.

TONCAN COPPER MO·LYB·DEN·UM IRON

REPUBLIC STEEL CORPORATION

GENERAL OFFICES — YOUNGSTOWN, OHIO

Structural Shapes

Tonnage Awarded Is Lighter, With Breweries Accounting for 5155 of 7668 Ton Total —Federal Work Coming Out Slowly—15,000 Tons Pending for New England

STRUCTURAL SHAPE PRICES, PAGE 47

Pittsburgh—Inquiries are more numerous. In projects involving less than 100 tons they total 3000 tons. Fabricators here have several more railroad bridges before them for bids, including structures for the Baltimore & Ohio, Chesapeake & Ohio and Erie roads. More consistency is shown in fabricated bids, this being caused by a firm single price policy having been adopted by producers on structural shapes since Aug. 1. The price on standard shapes is 1.60c, Pittsburgh, with wide flange quoted $2 up. Steel sheet piling remains 1.90c, Pittsburgh.

Cleveland—Development of public works program in this district is proceeding slowly, and comparatively little structural shape tonnage is coming out. Interest is centered in the Cleveland incinerator for which bids went in Aug. 11, requiring 550 to 1200 tons, depending on the design to be adopted. Brewing Corp. of America has awarded 425 tons for a building here. Plain material is firm at 1.60c, base, Pittsburgh.

Chicago—The largest structural tonnage for private construction placed in many months is for 2800 tons for a brewery at Peoria, Ill. Inquiries from private sources are slightly more numerous but generally are for small lots. Nearly 2000 tons of shapes are involved in state highway bridges in mid-western and western states. The shape market of 1.70c, Chicago, is quoted only for prompt business.

Boston—Bridge work approximating 15,000 tons is gradually developing in New England, bids being asked on the first of the projects, taking nearly 2500 tons. Current demand for fabricated material is light, including a few 100-ton jobs, but there is a slight gain in smaller lots. Plain material moves slowly into this territory at 1.70c, eastern mill.

New York—For New York state bridges 2000 tons of shapes are pending, contractors' bids being in on 1200 tons. Federal work comes out slowly, closing dates on considerable work throughout the country having been postponed, with uncertainty as to codes covering contractors and suppliers of materials. Awards are light, but include 1200 tons for a brewery. Plain material is 1.70c, eastern mill, with sellers resisting efforts for concessions to larger users.

Philadelphia — The market is quiet, with a few fair size jobs outside this district now being figured, including 610 tons for a state bridge in Virginia. Plain material is steady at 1.70c, base, Bethlehem, Pa.

Buffalo—Demand for structural steel continues to broaden. New inquiries reported this week total more than 1500 tons, while awards total more than 700 tons.

Contracts Placed

2800 tons, brewery, Peoria, Ill., for Premier-Pabst Corp., to Mississippi Valley Structural Steel Co., Decatur, Ill.

1200 tons, building, Hoffman Beverage Co., Newark, N. J., to McClintic-Marshall Corp., Bethlehem, Pa.

600 tons, bridges, Missouri Pacific railroad to American Bridge Co., Pittsburgh.

450 tons, additions to United States Pipe & Foundry Co. plant, Bessemer, Ala., to Virginia Bridge & Iron Co., Roanoke, Va.

425 tons, building, Brewing Corp. of America, Cleveland, to Republic Structural Iron Works, Cleveland.

300 tons, postoffice, New Bern, N. C., to Bethlehem Fabricators Inc., Bethlehem, Pa.

300 tons, for tanks for Hittleman Brewery, Staten Island, N. Y., to Buffalo Tank Corp., Staten Island, N. Y.

270 tons, German-American Brewing Co., Buffalo, to Buffalo Structural Steel Co.

250 tons, trusses for United States forest service, San Francisco, to Shrader Iron Works, San Francisco.

225 tons, garage, 134th street and Broadway, New York, to Fassler Iron Works, New York.

188 tons, bridge, Kansas City Southern railroad, Morris Ferry, Ark., to Virginia Bridge & Iron Co., Roanake, Va., to be erected by Kansas City Bridge Co., Kansas City, Mo.

175 tons, Y. M. C. A. building, Burlington, Vt., to Vermont Structural Steel Co., Burlington.

160 tons, tank supports, Orange Brewery Co., Orange, N. J., to Albert Smith's Sons Co., Newark.

125 tons, grain elevator, Minneapolis, to Minneapolis-Moline Power Implement Co., Minneapolis.

100 tons, building, Hovey Institute, Waltham, Mass., to Boston Bridge Works Inc., Cambridge, Mass.

100 tons, state bridge, Colrain, Mass., to Boston Bridge Works Inc., Cambridge, Mass.

Shape Awards Compared

	Tons
Week ended Aug. 12	7,668
Week ended Aug. 5	5,882
Week ended July 29	34,575
This week in 1932	13,805
Weekly average, 1932	14,285
Weekly average, July	15,464
Weekly average, July	15,809
Total to date, 1932	512,055
Total to date, 1933	510,398

Contracts Pending

8000 tons, estimated, two federal bridges and one railroad bridge, Cape Cod Canal, Sagamore and Bourne, Mass.; figuring plans.

3000 tons, bridge, Fore river, Quincy, Mass.; project authorized.

1800 tons, superstructure, Little Bay bridge, Dover-Newington, N. H.; closing Aug. 24.

760 tons, state highway bridge, Malone, N. Y.

635 tons, highways and bridges, Texas; bids Aug. 16.

600 tons, bridges, Jones Beach Parkway, Wantaugh, N. Y.

575 tons, bridge, Newark, N. J., Central Railroad of New Jersey.

575 tons, highway bridges, Mississippi.

500 tons, state bridge, Williamstown, Mass.

500 tons, state bridge, Saco, Me.; bids soon.

500 tons, extension to postoffice, Des Moines, Iowa.

500 tons, state bridge, Clallam county, Washington; bids Aug. 29.

475 tons, highway bridges, Laredo, Tex.

450 tons, building, Spear & Co., Jamaica, N. Y.

430 tons, bridge, Chelan county, Washington; bids Aug. 14.

400 tons, state bridge, East Boston, Mass.; bids soon.

400 tons, highway bridge, Spencer, Idaho.

350 tons, building, Monida, Mont.

300 tons, building, Chrysler Motors Corp., Detroit.

350 tons, approximately, shapes, plates, tainter gates, Oberlin, La.; Hardaway Contracting Co., Columbus, Ga., general contractor.

256 tons, I-beams, channels and angles, navy, two submarines, Portsmouth, N. H.; three bidders quoted same low price, 2.40c, delivered, on bulk of tonnage.

250 tons, bridge, Santos, Brazil.

200 tons, bottling house, Scranton, Pa., for Standard Brewing Co.

200 tons, rebuilding bridge, Lyme, Conn.; bids in.

185 tons, state bridge No. 265, Montgomery county, Pennsylvania; bids Aug. 23.

185 tons, county bridge, York, Pa.; bids about Aug. 25.

175 tons, shapes and beams for reinforcing floors in 12 public school buildings, Cleveland.

140 tons, postoffice, Malone, N. Y.; bids Aug. 24.

140 tons, Deer creek bridge, Rocks, Md., for state highway department.

125 tons, postoffice, Lewiston, Me.; bids of July 10 rejected.

Concrete Bars

Pending Tonnage Fairly Heavy, but Releases Are Slow In Developing—Illinois Allowed $17,500,000 Federal Funds for Road Work—Other States Plan Projects

REINFORCING BAR PRICES, PAGE 47

Chicago—Road work is expected to furnish increasing orders for concrete bars. Illinois has been allowed $17,570,770 of federal funds for road projects. Wisconsin will close on 1075 tons for highway construction this week, while Indiana has about 1000 tons to place. Awarding of 3000 tons for Milwaukee sewage disposal work still is deferred. Inquiries for private projects show occasional gains in number, with tonnage involved still light. Prices of 1.75c for billet bars and 1.50c for rail steel generally are steady but untested by large lots.

Pittsburgh—New orders have subsided but shipments are fairly heavy. The price of bars for reinforcing purposes still is 1.75c, Pittsburgh, in cut lengths. Rail steel bars are 1.50c, Pittsburgh.

Boston—Small-lot buying of concrete bars is fairly brisk at steady prices, but 1.75c, Pittsburgh and Buffalo, for cut lengths is untested on tonnage. Miscellaneous small bridge inquiry is fair, a state bridge at Williamstown, Mass., taking 190 tons.

New York—Bids are in on more than 2000 tons of highway mesh and bars for New York state work. New Jersey is expected to take figures shortly on highway and bridge needs. Buying is light, but a fair volume of small-lot business is going ahead. On this volume 1.75c, Buffalo and Pittsburgh, for cut lengths is well maintained.

About 4500 tons of mesh is pending in bids taken by New York, Aug. 11, 18 and 25.

Philadelphia—Award of 850 tons of reinforcing bars for the Pennsylvania railroad tunnel, Baltimore, is expected shortly. Otherwise demand is negligible. Prices are unsettled pending application of the steel code, and formation of a distributors supplement code.

Contracts Placed

175 tons, addition to Continental Can Co. plant, Seattle, to Northwest Steel Rolling Mills and Pacific Coast Steel Corp., Seattle; Austin Co., Seattle, general contractor.

115 tons, bridge, Allegheny county, Pennsylvania, to Carnegie Steel Co., Pittsburgh.

100 tons, highway structures, Queens county, New York, to Joseph T. Ryerson & Son Inc., New York; through C. Shaffer & Sons Inc., Buffalo.

Contracts Pending

1200 tons, mesh, highways and bridges, New York; bids Aug. 15.

1174 tons, specification 3173, Los Angeles; Soule Steel Co. and Blue Diamond Co., Los Angeles, low.

850 tons, Pennsylvania railroad tunnel, Baltimore; award expected shortly.

770 tons, highways and bridges, Texas; bids Aug. 16.

190 tons, highways and bridges, Arkansas; bids Aug. 17.

190 tons, state bridge, substructure, Williamstown, Mass., taking bids.

Dock Stocks of Iron Ore Now Less Than Last Year

Iron Ore Prices, Page 48

Cleveland—Stocks of Lake Superior iron ore at Lake Erie ports now are below the amount of a year ago—4,792,192 tons, as of Aug. 1, compared with 5,298,383 tons on the comparable date last year. Receipts at the ports and shipments for the season with dock balances follow:

	Receipts	Shipments	Dock Bal. Aug. 1, 1933
Buffalo	272,168	125	3,153
Erie	119,278	126,885	125,367
Conneaut	642,259	684,536	1,638,006
Ashtabula	517,776	623,883	1,428,281
Fairport	203,957	198,925	402,727
Cleveland	1,148,892	886,447	831,691
Lorain	748,679	567,674	24,430
Huron	83,309	83,724	321,796
Toledo	89,888	87,778	16,741
Total	3,826,206	3,259,977	4,792,192
1 year ago	625,938	963,455	5,298,383

Receipts at other than Lake Erie ports for the season to Aug. 1 were 1,239,555 tons, compared with 288,548 tons last year.

Concrete Awards Compared

	Tons
Week ended Aug. 12	**390**
Week ended Aug. 5	**1,700**
Week ended July 29	**10,825**
This week, 1932	**3,971**
Weekly average, 1932	**3,920**
Weekly average, 1933	**3,232**
Weekly average, July	**5,282**
Total to date, 1932	**137,684**
Total to date, 1933	**106,661**

Cold-Finished Price Firm; Shafting Is Advanced

Cold Finished Prices, Page 47

Pittsburgh — Turned and ground shafting, Cumberland, Md., base, has been advanced $5 a ton, which is similar to the rise on cold-finished bars last week. Advanced prices on the various size classifications of shafting appear on page 47 of STEEL. The market on cold-finished bars still is strong and producers are working with backlogs of good proportion. Shipments this month are comparable to June but new orders show declines. Cold-drawn bars have been tested in some recent instances at 1.95c, base Pittsburgh. There still is considerable 1.70c tonnage not entirely specified.

Mayville Stacks Bid In

Plant and equipment of the old Mayville Iron Co., Mayville, Wis., was bid in by Iron & Steel Products Inc., Railway Exchange, Chicago, at the public auction held at Mayville Aug. 3. The amount of the bid was not revealed. J. C. Nance, representing the purchasing company, indicated that the plant will be dismantled. Equipment includes two 400-ton blast furnaces, 9 hot blast stoves, three locomotives and many cars; storage bins and trestles; 700 tons of rails, 400 tons of pipe, 200 carloads of fire brick and 15,000 tons of scrap steel and iron. It was partly dismantled several years ago when the latest owner of the property, Youngstown Sheet & Tube Co., disposed of it to Chicago interests. The plant site and ore deposits were not included in the sale, having been held under lease.

New England Plant Reopens

Union Drawn Steel Co., subsidiary of Republic Steel Corp., Youngstown, O., has resumed production at its plant at Hartford, Conn., after being practically closed for about a year. About 60 men were recalled to work. General improved conditions in manufacturing have increased demand for products of this plant.

Production of pig iron in Japan in May was 83,725 metric tons, an increase of 2250 metric tons over the production in May, 1932. Total production of the present fiscal year was 165,200 metric tons.

Pipe

Ten Thousand Tons Placed for Southwestern Gas Line—Market for Standard Pipe Is Quieter

PIPE PRICES, PAGE 47

Pittsburgh—Demand for standard pipe appears to have subsided the past week and fewer orders are noted. No line pipe projects are being considered by producers here as ready for active closing. Pipe shipments continue fairly active by barge to points on the lower Ohio. Pipe operations in this district continue mainly on the small sizes of standard pipe and mechanical tubing.

Cleveland—General contractors' bids on Cleveland watermains, requiring approximately 32,000 tons of cast iron pipe, 24 to 48 inches, 2500 tons of steel plates for welded riveted construction, and 1000 tons of pipe fittings, have been awarded with indications that material will be purchased shortly. The market for standard pipe is quiet, jobbers placing occasional carload orders.

Chicago—Cast pipe orders are light and work financed by public funds has yet to make its appearance. Projects for which applications for loans have been made in the Middle West involve a large tonnage of cast pipe but in few instances have these applications been approved. Detroit is seeking funds for about $80,000,000 of public work. Pipe is pending for a sewage disposal plant at Milwaukee to be financed by federal aid. For an extension to a southwestern gas pipe line, 10,000 tons of steel pipe have been placed with the A. O. Smith Corp.

Boston—For steam line extension by the Boston Edison Illuminating Co., three contractors have bought close to 175 tons of steel pipe, 16-inch and under. Steel pipe business is being done at recent advances. Cast pipe demand is small. Providence, R. I., has placed 500 tons with a New Jersey foundry which is also low on 3000 tons for Lowell, Mass.

New York—Cast pipe buying and inquiry is light, some tonnage being held up by lack of financing. Several hundred tons are bid for Westchester county sewers while state projects furnish the bulk of other inquiry, none large. On small miscellaneous buying, $35 to $36, eastern foundry, prevails.

Birmingham—Pipe business shows little change. Several contract awards are reported but the pipe has not been purchased.

Cast Pipe Placed

500 tons, 12-inch, Providence, R. I., to United States Pipe & Foundry Co., East Burlington, N. J.

167 tons, 6-inch class B, Santa Monica, Calif., to Ipamco Pipe Corp., Los Angeles, which will furnish foreign pipe.

Steel Pipe Placed

175 tons, 16-inch and under, steam line extensions, Edison Electric Illuminating Co., Boston, to National Tube Co. and Bethlehem Steel Co., through three Boston contractors.

Unstated tonnage, 105,600 feet, small sizes, iron or steel, for Panama, to United States Steel Products Co., New York, $10,542, delivered; bids July 10, schedule 2880.

Unstated tonnage, corrosion resisting steel tubing, navy, Puget Sound, Calif., to National Tube Co., Pittsburgh, $11,923.24, delivered; bids Aug. 1, schedule 446.

Cast Pipe Pending

1850 to 2150 tons, 5 to 8-inch class B or 150 to 250, Oakland, Calif; bids Aug. 11.

1112 tons, 20 and 30-inch Denny Way, Seattle, extension; Queen City Construction Co. awarded contract, awaiting confirmation of R. F. C.

250 tons, 10 and 18-inch, federal prison, McNeil Island, Wash.; readvertised bids called for Aug. 8.

310 tons, 6, 8 and 10-inch, state prison, Walla Walla, Wash.; bids Aug. 8.

172 tons, 18-inch class B, Alhambra, Calif.; bids rejected.

150 tons, Los Angeles county fair grounds, Pomona, Calif; bids Aug. 7.

109 tons, 6, 8 and 12-inch for Sumner, Wash.; bids Aug. 14.

100 tons, 4 and 6-inch, Liberty, N. Y.; bids in.

Power Show for Buffalo

A power show and mechanical exposition will be held in Buffalo, Aug. 28-Sept. 2, in the Broadway auditorium in connection with the convention of the National Association of Power Engineers. Carr Parker is chairman of the exposition committee.

Nears End of Receivership

Creditors of the Internationl Steel Co., Evansville, Ind., are to be paid in full. Indiana circuit court approval of plans to pay a 35 per cent dividend was given the National City

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bank, receiver. The company was placed in the hands of a receiver about a year ago and since that time has paid 65 per cent of its claims. According to the petition just filed, the business is in such a condition that the receivership may be ended and the property returned to stockholders and officers.

Seitetsusho, Japanese steel syndicate has succeeded in rolling some types of steel sheet piling and is ready to furnish this product for the home market.

Suspends Southern Rates

Interstate commerce commission has suspended until Feb. 28, 1934, the operation of certain railroad schedules which propose to establish a proportional rate of 20 cents per 100 pounds on iron and steel articles in carloads, from New Orleans and Baton Rouge, La., to Texas Gulf ports to be used in connection with proportional barge line, or rail-barge proportional rates from Birmingham and other interior southeastern origins to New Orleans via the Inland Waterways Corporation.

Mexico Suspends Duties on Specific Steel Products

Two recent measures by the government of Mexico promise additional exports of steel products from the United States to that country.

One measure exempts from import duties all kinds of building materials for construction work at Acapulco, Mexico, a large west coast port. Its isolated position imposes great difficulties in delivery of materials from Mexican mills and they must be imported, the United States being the most logical source.

The other order exempts from duty all steel and iron sheets intended for the manufacture of foodstuff containers as these materials are difficult to obtain from domestic producers. Export of food products from Mexico is increasing and this action opens the way for increased sales for this purpose.

Scans Price Fixing Report

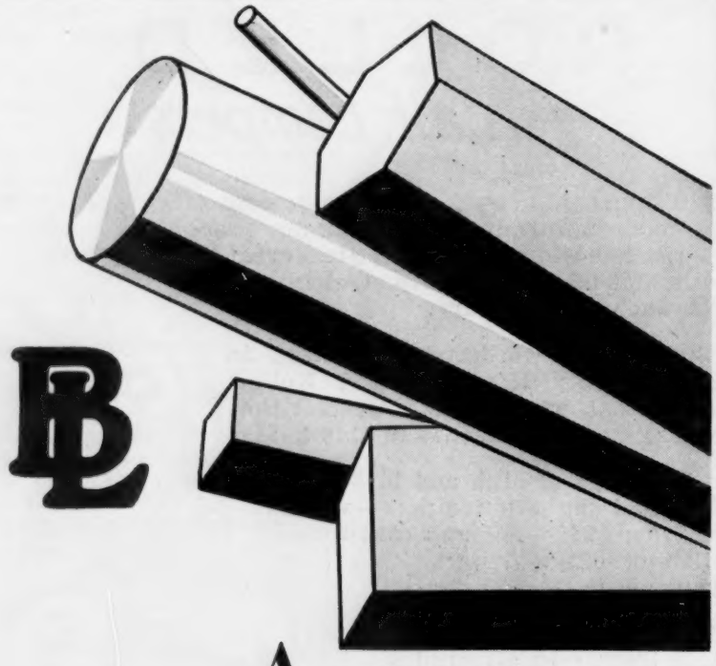
Federal trade commission now has before it for final consideration its report relating to contracts for the construction of government buildings particularly with a view of determining whether or not there are or have been any price fixing or other agreements in connection with building materials with respect to the prices or other terms at which such materials will be furnished contracts for the work. The report was called for by a senate resolution and the results will be transmitted to the senate.

Soviet Stacks Set Record

Daily output of pig iron in Soviet Russia since the beginning of June has been above 20,000 tons, reaching a record of 22,470 tons on June 14, according to the bulletin of economic information of the USSR chamber of commerce.

Los Angeles Ships Scrap

Export of scrap iron and steel from Los Angeles to the Orient was resumed July 20 when a Japanese freighter took out 1500 tons. A second shipment was to be made July 26.



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Sales Offices in all principal cities

Pig Iron

Shipments Continue Heavy But New Buying Dwindles—Sellers Not Quoting Beyond Oct. 1

PIG IRON PRICES, PAGE 48

Pittsburgh—Ten days ago the soft coal strike, appearing serious, forced several steel companies in this district to inquire for basic iron. However, by last week, the situation eased and pig iron business has reverted to occcasional carload lots which merchant foundries, radiator makers and other melters are specifying from day to day. The market is firm at $17, Neville Island, on foundry grades, with bessemer 50 cents higher and $16.50 nominally quoted for basic.

Cleveland—Shipments are heavier than in July, but there is little new inquiry, and sales are light, 1000 tons for the week in the case of a leading merchant interest here. Steelworks furnaces are practically out of the market, having little to offer. The market is firm at $16.50, base, Cleveland, for local or outside shipment. Considerable hesitation in forward commitments is caused by consumers' expectations of higher wages and increased costs of materials under the industrial codes.

Chicago—Shipments have yet to show the decline anticipated for this month, the movement instead showing slight gains in some directions. New business is fairly steady but buying is not expected to increase materially before September. Prices have been firm and there are some expectations of a further advance for fourth quarter. Consumers' stocks have increased moderately over recent weeks, principally as a result of heavier consumption, though in some instances users have anticipated further price increases. The market continues $17, furnace, for No. 2 foundry and malleable.

Boston—Sellers are not openly booking fourth quarter business at present prices, but some current buying, which is light, may be for last quarter melt. Shipments against old orders are fair. A machinery builder is inquiring for several hundred tons. Mystic Iron Works price is firm at $17, furnace, with other domestic producers in line as to freight and silicon differentials. Dutch iron still may be bought below this figure, but Indian iron is near the domestic market. Freight rate on pig iron from Bridgeport, Conn., and Harbor Junction Wharf, R. I., to Indian Orchard, Mass., has been reduced to $2.65 from $3.20.

New York—Domestic pig iron sellers as yet have not opened their books for fourth quarter and consequently are not submitting figures, it is said, on 400 tons of No. 2 plain and No. 2X foundry iron for the A. P. Smith Mfg. Co., East Orange, N. J. Action on fourth quarter quotations is not likely until after the steel code has been approved; moreover, there may be a delay pending clarification of the labor outlook in the coal and coke regions of Western Pennsylvania. Shipments continue good, but new business remains dull.

Buffalo—Buying is limited to iron for almost immediate shipment because sellers refuse to quote beyond Oct. 1. While August shipments to date have been slightly behind those

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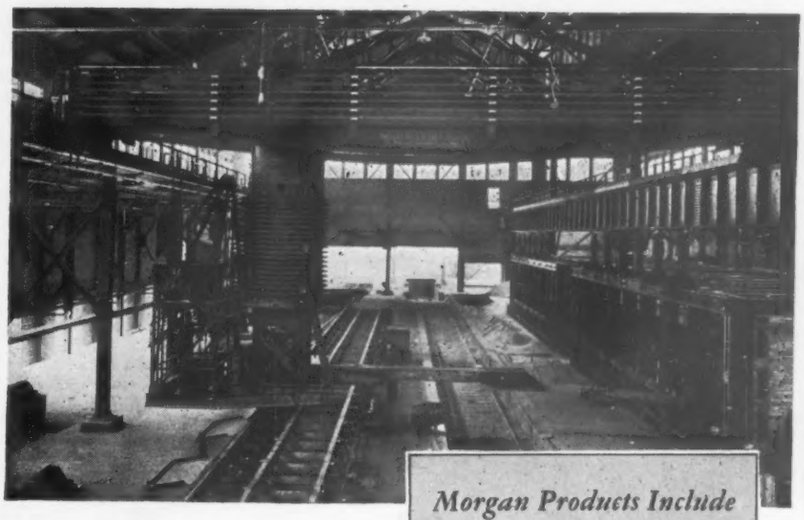

ON THE blue prints a Morgan horizontal Charger indicates extraordinary ability to stand up under hard service. In mill use, the results of six decades of Morgan engineering integrity are seen in the rigid construction which withstands the severe stresses to which a charger is subjected. Shown here is a 3-ton, 52'-0" Span, Overhead Billet Charger, one of several types built by Morgan for charging and drawing slabs or billets. Morgan Chargers are built in any capacity required, with side or end grip tongs operated by air or motor. Trolley frame is a one-piece box section steel casting with spur or worm gearing mounted directly on the top.

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STRUCTURAL MILLS
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of the first half of July they are still near the peak of the last two years. Prices are being maintained firmly. Six blast furnaces are producing here.

Philadelphia—Buying is light with some letup noted on contract shipments. Prices are firm. Brooke Iron Co., Birdsboro, Pa., will blow in its stack some time next month.

Cincinnati—Sales are down sharply, chiefly because important interests in this district covered needs for this quarter. Shipments continue near the July rate with melt little changed and probably only a small part of the iron being added to inventory. Labor troubles in the coal fields have not been reflected in the fourth-quarter inquiries.

St. Louis—Contrary to seasonal precedent, the melt here has gained during the past three weeks. Malleable and gray iron foundries account for the major portion of the tonnage being moved. Stove and heating apparatus plants report the best volume of business since 1929. Shipments of iron continue heavy. Furnace interests are not quoting on fourth-quarter inquiries. Prices are unchanged.

Birmingham, Ala.—Buying, in small tonnages, is active, the aggregate tonnage of foundry iron being moved approximating current production. Base price, $13, is firm.

Toronto, Ont.—Sales fell into a slump during the week, largely due to a holiday on Monday. Producers look for more active demand early in September. Melters are buying as demands dictate and no booking has been done for future delivery. Prices are firm and unchanged.

Coke

Foundry Grades Marked Up; Labor Situation Clearing

Coke Prices, Page 48

The coke market was clarified somewhat late last week when friction died down, at least partly, in the Western Pennsylvania coal fields. Consequently, coke prices were more definitely settled and several producers entirely out of the market ventured a few quotations. With this re-entry, premium foundry coke has been advanced 50 cents to $4.50, Connellsville ovens, and common grades of foundry coke are up to $3.75, ovens. Furnace coke carries a wide range. One producer is not willing to sell under $3.50 or $4, ovens, but some small tonnage is available at $2.75 and $3.

Foundries in the Chicago district are taking larger lots of by-product coke, shipments being heavier than a month ago. Demand was stimulated recently to a certain extent by prospects of a coal and coke shortage resulting from the eastern strike and some users are protecting themselves with larger inventories. There are some expectations of an advance in prices for September over current levels of $7.75, ovens, for outside delivery and $8.25 delivered, Chicago.

Ferroalloys More Active

Ferroalloy Prices, Page 48

Ferromanganese is unchanged at $82, eastern seaboard, on spot and contract shipments in car lots, while domestic spiegeleisen, 19 to 21 per cent, is steady at $27, furnace, for spot, delivered. New specifications are larger than a week ago, although sellers are not inclined to attach any particular significance to this development.

Two furnaces in the Pittsburgh district continue on ferromanganese. The stocks of this alloy belonging to one important steel producer have been greatly reduced recently. Washed gravel fluorspar is $14, Illinois, or $15.50, delivered Pittsburgh, by all water route.

Some Refractories Up $5

Refractory brick producers advanced prices $5 per 1000 effective Aug. 7 on first and second quality fire clay, malleable bung and silica brick. Magnesite and chrome brick are not affected.

Imports at Philadelphia

Philadelphia — Imports received at this port during the week ending Aug. 5 included 3800 tons manganese ore from Cuba. Swedish imports included 100 tons sponge iron, 9 tons steel bars and 5 tons steel tubes.

National Supply Co., Toledo, O., is shipping five to seven cars of finished oilfield supplies each week, compared with two to three cars a month a year ago. The company is employing six times as many workers as a year ago and is buying three to five cars of steel a month, compared with one car per month last year.

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Every pickling and acid storage tank we produce is made to order. Only perfect timbers are used—tie rods, nuts and washers are made of acid resisting bronze or Monel metal.
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CINCINNATI, O U.S.A.
WE WIN WITH QUALITY

Scrap

Prices Firm and Some Are Advanced—Tonnage Buying At Market—Some Grades Scarce

Pittsburgh—A down-river mill purchased several thousand tons of heavy melting steel the middle of last week, paying $14, delivered. This follows upon the purchase ten days ago of around 15,000 tons by the Donora, Pa., plant at $14 and $13.75, Union railroad points in Pittsburgh. Although the scrap on the Pennsylvania railroad list brought around $14.75, this grade of heavy melting steel always carries a recognized premium of from 50 to 75 cents per ton for quality. The scrap market here is considerably stronger than two weeks ago as a result of these purchases. The list of the Pittsburgh & Lake Erie railroad, approximately 1000 tons, was sold to a Monessen, Pa., user at $14, and the Baltimore & Ohio July list sold Aug.

IRON AND STEEL SCRAP PRICES

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL
Birmingham	9.00 to 10.00
Boston, dealers	7.00 to 7.50
Buffalo, No. 1	11.00 to 11.50
Buffalo, No. 2	10.00 to 10.50
Chicago	10.25 to 10.75
Cleve., No. 1	10.50 to 11.00
Cleve., No. 2	10.00 to 10.50
Det., No. 1	9.50 to 10.00
Det., No. 2	8.50 to 9.00
E. Pa.	12.00
E. Pa., No. 2	10.50
Federal, Ill.	8.75 to 9.25
Granite City, Ill.	8.00 to 8.50
N. Y., deal. R. R.	8.00 to 8.50
N. Y., deal. No. 2	7.00 to 7.50
N. Y. deal. yd.	5.50 to 6.00
Pitts., No. 1	13.50 to 14.00
St. L. No. 1 del.	9.00 to 9.50
Valleys, No. 1	13.00 to 13.50

COMPRESSED SHEETS
Buffalo, dealers	9.50 to 10.50
Chi. (Factory)	8.50 to 9.00
Cleveland	10.00 to 10.50
Detroit	9.50 to 10.00
E. Pa. new mat.	11.00 to 11.50
Pittsburgh	13.00 to 13.50
Valleys	12.50 to 13.00

BUNDLED SHEETS
Buffalo	5.50 to 6.00
Cincinnati, del.	6.00 to 6.50
Cleveland	8.00 to 8.50
Eastern Pa.	9.00 to 10.00
Pittsburgh	12.00 to 12.50
St. Louis	5.50 to 6.00

SHEET CLIPPINGS LOOSE
Chicago	5.00 to 5.50
Cincinnati	5.00 to 5.50
Detroit	6.50 to 7.00
St. Louis	5.00 to 5.50

STEEL RAILS SHORT
Birmingham	11.50 to 12.00
Boston, dealers	6.50 to 7.00
Buffalo	12.00 to 12.50
Chicago (3 ft.)	11.50 to 12.00
Chicago (2 ft.)	12.00 to 12.50
Cincinnati, del.	11.50 to 12.00
Detroit	11.00 to 11.50
Pitts. (open-hearth, 3 ft. and less)	15.00 to 15.50
St. Louis	10.50 to 11.00

STOVE PLATE
Birmingham	7.00 to 7.50
Boston, dealers	4.50 to 4.75
Buffalo	9.00 to 9.50
Chicago, net	8.00 to 8.50
Cinci., deal. net	6.00 to 6.50
Detroit, net	4.50 to 5.00
Eastern Pa.	9.50
N. Y. deal. Fdry.	6.00 to 6.50
St. Louis	7.00 to 7.50

COUPLERS, SPRINGS
Buffalo	11.50 to 12.00
Chicago	11.00 to 11.50
Eastern Pa.	14.00 to 14.50
Pittsburgh	15.00 to 15.50
St. Louis	10.00 to 10.50

ANGLE BARS—STEEL
Chicago	11.00 to 11.50
St. Louis	9.50 to 10.00

LOW PHOSPHORUS
Buffalo, billets and bloom crops	11.50 to 12.50
Cleveland bil. and bloom crops	12.50 to 13.50
Eastern Pa.	13.00 to 14.00
Pittsburgh billet bloom crops	15.50 to 16.00
Pitts., sheet bar crops	15.50 to 16.00

FROGS, SWITCHES
Chicago	10.50 to 11.00
St. Louis	10.00 to 10.50

SHOVELING STEEL
Chicago	10.25 to 10.75
Cleveland	6.75 to 7.00
St. Louis	9.00 to 9.50

RAILROAD WROUGHT
Birmingham	7.00 to 7.50
Boston, dealers	2.00 to 2.50
Buffalo, No. 1	7.00 to 8.00
Buffalo, No. 2	11.00 to 11.50
Chi., No. 1, net	9.00 to 9.50
Chi., No. 2	10.25 to 10.75
Cinci., No. 2	9.00 to 9.50
Eastern Pa.	13.00
N. Y., No. 1 deal.	6.50 to 7.00
Pitts., No. 1	13.50 to 14.00
St. Louis, No. 1	7.00 to 7.50
St. Louis, No. 2	8.75 to 9.25

SPECIFICATION PIPE
Boston	4.00 to 4.50
Eastern Pa.	9.50 to 10.00
N. Y., deal.	5.50 to 6.00

BUSHELING
Buffalo, No. 1	9.50 to 10.50
Chicago, No. 1	8.50 to 9.00
Cinci., No. 1 deal.	6.50 to 7.00
Cinci., No. 2	3.00 to 3.50
Cleve., No. 2	8.00 to 8.25
Det., No. 1 new	8.25 to 8.75
St. Louis, No. 1	6.50 to 7.00
Val. new No. 1	12.50 to 13.00

MACHINE TURNINGS
Birmingham	3.00 to 3.25
Boston, dealers	4.25 to 4.50
Buffalo	6.25 to 6.75
Chicago	6.00 to 6.50
Cinci., deal.	5.50 to 6.00
Cleveland	8.00 to 8.25
Detroit	6.50 to 7.00
Eastern Pa.	8.00 to 8.50
N. Y., deal.	4.50 to 5.00
Pittsburgh	10.50 to 11.00
St. Louis	4.50 to 5.00
Valleys	10.75 to 11.00

BORINGS AND TURNINGS
For Blast Furnace Use
Boston, dealers	3.50 to 3.75
Buffalo	6.50 to 7.00
Cinci., deal.	5.50 to 6.00
Cleveland	8.25 to 8.50
Detroit	7.00 to 7.50
Eastern Pa.	7.00 to 7.50
N. Y., deal.	4.50 to 5.00
Pittsburgh	9.75 to 10.25

CAST IRON BORINGS
Birming., plain	3.00 to 3.25
Boston, chem.	9.00 to 10.00
Boston, dealers	3.25 to 3.50
Buffalo	6.25 to 6.75
Chicago	6.00 to 6.50
Cinci., deal.	5.50 to 6.00
Cleveland	8.25 to 8.50
Detroit	7.00 to 7.50
E. Pa., chem.	10.00 to 12.00
N. Y., deal.	4.50 to 5.00
Pittsburgh	9.75 to 10.25
St. Louis	4.75 to 5.25

PIPE AND FLUES
Cinci., deal.	4.50 to 5.00

RAILROAD GRATE BARS
Buffalo	5.00 to 5.50
Chicago, net	7.50 to 8.00
Cincinnati	5.00 to 5.50
Eastern Pa.	9.00 to 9.50
N. Y., deal.	5.00 to 5.25
St. Louis	6.00 to 6.50

FORGE FLASHINGS
Boston, dealers	5.00 to 5.50
Buffalo	9.00 to 9.50
Cleve. ov. 10 in.	9.00 to 9.50
Detroit	8.00 to 8.50

FORGE SCRAP
Boston, dealers	4.00 to 4.50
Chicago (heavy)	11.50 to 12.00
Eastern Pa.	10.00

ARCH BARS, TRANSOMS
Chicago, net	8.00 to 8.50
St. Louis	9.00 to 9.50

AXLE TURNINGS
Boston, dealers	4.50 to 4.75
Buffalo	7.50 to 8.00
Chi., elec. fce.	8.00 to 8.50
Cleveland	9.50 to 10.00
Eastern Pa.	10.00 to 10.50
St. Louis	5.50 to 6.00

STEEL CAR AXLES
Birmingham	9.00 to 9.50
Boston, ship. pt.	8.00 to 8.50
Buffalo	10.00 to 11.00
Chicago, net	11.50 to 12.00
Eastern Pa.	15.50
St. Louis	10.25 to 10.75

SHAFTING
Boston, ship. pt.	9.50 to 10.00
Eastern Pa.	15.00 to 15.50
N. Y., deal.	10.00 to 10.25
St. Louis	8.00 to 8.50

CAR WHEELS
Birming., iron	9.00 to 9.50
Boston, iron deal.	5.50 to 6.00
Buffalo, iron	8.00 to 9.00
Buffalo, steel	11.00 to 11.50
Chicago, iron	9.50 to 10.00
Chi., rolled steel	11.50 to 12.00
Cincinnati, iron	8.50 to 9.00
E. Pa., iron	12.00 to 13.00
E. Pa., steel	14.50
Pitts., iron	12.50 to 13.00
Pitts., steel	15.00 to 15.50
St. Louis, iron	8.50 to 9.00
St. Louis, steel	10.00 to 10.50

NO. 1 CAST SCRAP
Birmingham	9.00 to 10.00
Boston, No. 2	5.00 to 5.50
Boston, Tex. con.	10.00 to 10.50
Buffalo, cupola	10.00 to 10.50
Buffalo (mach.)	11.00 to 11.50
Cleve. cupola	10.50 to 11.00
Chi., mach. net	10.50 to 11.00
Chi., railroad net	10.00 to 10.50
Cinci., mach. cup.	9.00 to 9.50
Cleve. cupola	10.00 to 10.50
Detroit, net	8.50 to 9.00
E. Pa., cupola	12.00 to 13.00
N. Y., cup. deal.	6.00 to 6.50
N. Y., del. local foundries	9.00 to 9.50
Pitts., cupola	10.50 to 11.50
San Fran., del.	13.50 to 14.00
Seattle	4.50 to 6.50
St. Louis, No. 1	9.00 to 9.50
St. L. No. 1 mach.	9.00 to 9.50

HEAVY CAST
Boston, del.	5.25 to 5.50
Bost., mach. cast	7.00 to 7.50
Buffalo, break	7.00 to 8.00
Cleve., break	7.50 to 8.00
Detroit, auto net	9.50 to 10.00
Detroit, break.	6.50 to 7.00
Eastern Pa.	10.00 to 10.50
N. Y., No. 1, deal.	7.00 to 7.50
N. Y., break. deal.	6.75 to 7.00
Pittsburgh	10.00 to 10.50

MALLEABLE
Boston, consum.	11.00 to 12.00
Buffalo	11.50 to 12.00
Chicago, R. R.	11.00 to 11.50
Cinci., agri. del.	8.50 to 9.00
Cinci., R. R. del.	9.00 to 9.50
Cleveland, rail	11.50 to 12.00
Detroit, auto	8.50 to 9.00
St. Louis, R. R.	9.50 to 10.00

RAILS FOR ROLLING
5 feet and over
Birmingham	9.50 to 10.50
Boston, dealers	6.00 to 6.50
Buffalo	9.00 to 9.50
Chicago	11.00 to 11.50
Eastern Pa.	13.00
New York, dealer	7.25 to 7.75
St. Louis	10.50 to 11.00

LOCOMOTIVE TIRES
Chicago, cut	11.00 to 11.50
St. L., No. 1	8.50 to 9.00

LOW PHOS. PUNCHINGS
Buffalo	11.00 to 11.50
Chicago	11.50 to 12.00
Eastern Pa.	12.50 to 13.50
Pittsburgh	15.25 to 15.75

7, is understood to have moved direct into the plants of a leading interest here. While machine shop turnings are stronger at $11 to at least one point, blast furnace scrap is off 25 cents a ton and in keeping, both heavy cast and cupola cast scrap, are softer.

Cleveland—Activity in steel and iron scrap is confined almost entirely to shipments on contracts. Some small lots of blast furnace material and broken cast scrap have been bought. Prices continue firm and show considerable strength. Further buying is expected within a few days.

Chicago—Scrap is marking time with prices generally steady and unchanged. There is no mill buying, following fairly heavy purchases of heavy melting steel by two interests at $10.50 to $10.75 a week ago, leaving the market on this grade unchanged at $10.25 to $10.75. Some railroad lists are moderately heavier and dealers find larger lots of some grades available. Shipments against orders are fairly heavy but have tended downward slightly at some points recently.

Boston—Activity in scrap has subsided, although shipments continue heavy, prices are strong and a light supply is available for several active grades. Stove plate and No. 1 machinery cast are firmer with $7, delivered, on the former and $11 paid for the latter, delivered. The Worcester and Phillipsdale steel works continue to pay $9 to $9.50 for heavy melting steel, delivered.

New York — Scrap prices are strong with an advancing tendency on some grades, although the activity of last month has subsided. Buying continues active and most mills are taking shipments. Buying for water shipment holds well.

Philadelphia—While heavy melting steel and some other leading grades are unchanged scrap prices are higher on some items, including cupola cast, knuckles and couplers, rerolling rails, stove plate and steel wheels.

Detroit—The market continues to show elements of strength in bidding prices on current automobile and railroad lists but published prices hold without change.

Buffalo—The quietest week since April is reported by scrap dealers. Consumers, comfortably covered for the quarter, are awaiting definite price trends before taking care of future needs. Large shipments of No. 2 heavy melting steel are arriving here from down state, by rail and by barge.

Cincinnati—Bullish sentiment prevails in the scrap market here despite dull trading. Interest centers on another list of the Louisville & Nashville railroad offering 23,000 tons, of which 9500 tons are rails. In the past two years this road has withdrawn the material after bidding, issuing lists spasmodically. Deliveries on 75,000 to 100,000 tons of scrap from L. & N. cars, on a sale for the Ashland plant of the American Rolling Mill Co., will run over eight or 10 months. Prices are unchanged.

St. Louis—Prices of iron and steel scrap continue strong, advances having been made on blast furnace materials, some steel specialties and cast grades. Available supplies are dwindling, and dealers are hesitant about taking orders unless they have material in sight.

Birmingham, Ala.—No slowing of demand or curtailment of shipments of steel and iron scrap have appeared. Prices are firm and unchanged.

Toronto, Ont.—Trading dullness has appeared in the iron and steel scrap markets. Montreal dealers are shipping steel scrap on export account but report no demand for domestic use. Small tonnages of iron scrap are moving on spot orders. Cast scrap has a fair call and sales are picking up. Prices are unchanged.

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Bolt, Nut Prices Firm; Jobbers Buy at Better Rate

Bolt, Nut, Rivet Prices, Page 47

The discount off list holds at 73 for bolts and nuts. This applies without change for specifications received over the remainder of this quarter. The same is true in large rivets, at 2.50c, Pittsburgh, and 2.60c, Chicago. Many large buyers of these items are expected to bolster the present listless market when they re-enter shortly with orders.

Shipments continue steady and so far this month compare favorably with those during the correspondingly July periods. New buying has been fairly active with jobbers and small miscellaneous consumers ordering in relatively heavier volume than the railroad and farm implement industries. Demand from some railroads has expanded but consumption by this group still is considerably below the usual volume.

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Phoenix Steel Rolls
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PHOENIXLOY
(Uniformly Hard)

PITTSBURGH ROLLS CORPORATION

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Wire

Prices Firm and Demand Good; Seasonal Decline Not Marked

Wire Prices, Page 47

Pittsburgh—The wire market finds as many orders and inquiries in number the past week as through most of July though tonnage is less. July proved to be a high point for most producers. Even though buying was heavier before the Aug. 1 deadline when prices were advanced, there has been test the past week on nails, wire and fencing. This new schedule calls for $2.10 per keg on nails, 2.10c on plain manufacturing wire and $55 on fencing. Shipments on all lower priced contracts are expected to be finished by the middle of this month. Wire mill operations are still strong at around 65 to 70 per cent of capacity in this district and deliveries on many items are difficult to promise.

Cleveland—Demand for wire and wire products is holding up exceptionally well, deliveries in many instances being two to three weeks deferred. Shipments to bolt and nut manufacturers, and to automotive interests continue heavy. Prices are firm, with 2.10c applying to plain wire, 2.10c on nails.

Chicago—Continued good demand for manufacturers' wire keeps activity in this market seasonally heavy. Shipments of wire products to farm areas still are rather light but needs of the automotive and several other larger consuming industries have shown only a slight recession this month. Farm demand is expected to increase during fall. Prices are steady, wire nails continuing $2.15 in carloads with plain wire 2.15c.

Boston—Wire mills are being pushed on deliveries, with operations generally holding at a high rate. Sales have been made no further than Sept. 30. New orders have declined following heavy covering in July.

New York—Diversified demand for wire products continues. Prices are steady, with nails $2.10 and plain bright wire 2.10c, Pittsburgh.

Semifinished Demand Strong

Semifinished Prices, Page 48

Semifinished steel shipments still are heavy. Sheet bars, billets and slabs hold at $26, base, Pittsburgh, Youngstown, O., and Cleveland, with wire rods quoted $35 through this quarter, and forging billets $31. The Canton, O., base on sheet bars is reported to be not as yet in effect, but

in all probability will be observed under the steel code.

Oakland Bridge To Use Nickel Structural Steel

Nickel structural steel, containing not less than 3 per cent nickel with a minimum yield point of 55,000 pounds and a tensile strength of 90,000, is to be used extensively in the San Francisco-Oakland Bay bridge. About 3700 tons of this steel will be employed, mainly in compression members.

Nickel structural steel is more generally utilized in long-span bridges, including two East river bridges, New York, the Delaware river bridge and the Quebec bridge. Most of this analysis steel in the Oakland Bay bridge will be used in the 1400-foot cantilever span at the East Bay crossing. While used mainly in compression members, corresponding tension members are of heat-treated carbon steel eyebars.

The principal advantage in using nickel steel is that by using rather high unit stress engineers are able to reduce the weight of steel in the structure, thereby reducing the dead load stress. Reduction in area of members also makes it possible to reduce rivet grip which otherwise would reach rather long lengths.

Navy Closing on Forgings

Bureau of ordnance, navy department, Washington, is closing Aug. 21 on one of the largest steel forging inquiries in several years, including 160 5-inch gun barrel forgings and 96 5-inch 38 breech housing forgings.

To Make Alloy Steel Soon

An official of the Youngstown Sheet & Tube Co., Youngstown, O., has confirmed reports, widely current, that the company will soon embark on the manufacture of alloy steels. Definite plans are expected to be completed and to be announced shortly.

Announces Welding Flux

A new all-purpose aluminum welding flux has been announced by the Linde Air Products Co., 30 East Forty-second street, New York. This new flux is intended to replace two fluxes previously marketed, one for welding pure aluminum and the other for welding aluminum alloys. The new material is packed in ¼-pound jars which in turn are packed in cardboard cartons.

New Extras on Tool Steel

Making effective Aug. 1 a new classification of extras on tool and high-speed steels, manufacturers have revised the price structure for the first time, in some directions, in 60 years. The changes are mostly substituting American practice for the original English. In the new schedule, squares and flats are grouped together, with various bases beginning with widths of 1½-inch x ⅝, ¾, 1¼ and 1½ inches thick. One thousand instead of 300 pounds is now the base for quantity extras. Cutting extras also have been revised.

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Memphis . New York . St. Louis . Washington, D. C. . Los Angeles

Men of Industry

(*Concluded from Page* 21)

as the Cincinnati representative. Mr. Blackburn began work with the Carnegie Steel Co. at the Homestead works in 1904. He entered the sales department in 1913 and has been continuously with that department up to the present.

□ □ □

John J. White, president, Tube Reducing Corp., New York, is expected to return about Sept. 1 from a trip to Europe.

□ □ □

C. B. Smith has resigned as president of the Stewart-Warner Corp., Chicago. Election of his successor is scheduled to take place at the next board meeting Aug. 24.

□ □ □

A. J. Speer, personnel director, American Cast Iron Pipe Co., Birmingham, Ala., has been named director of the national recovery administration program in Alabama.

□ □ □

A. S. Geiger, purchasing agent, West Leechburg Steel Co., Pittsburgh, has retired. He has been succeeded by his former assistant, N. W. Hayson, as purchasing agent.

□ □ □

Nathaniel S. Reeder has been appointed general manager for receivers of the Pressed Steel Car Co., in full charge of plant operations. Mr. Reeder will continue as president of the American Steel Corp. of Cuba. His headquarters will be at McKees Rocks, Pa.

Mr. Reeder was graduated from Cornell university in 1896 and joined the Pressed Steel Car Co. in 1902. From 1905 to 1910 he was in charge of a subsidiary, the Canada Car Co. Ltd., which was later merged with the Canadian Car & Foundry Co., Montreal. He was elected vice president of the parent company in 1910, and a director in 1915.

Million Workers in Plans

From 1919 to 1932 the number of workers covered by employe representation systems in the United States increased from 403,765 to 1,263,194. In 1932 the number of companies with employe plans was 313, according to the National Industrial Conference board, New York.

Drawback allowance has been granted by the treasury department on car wheels manufactured by the New Orleans Car Wheel Co. Inc., New Orleans, La., with the use of imported iron, steel, old cast iron wheels, manganese, spiegeleisen, and ferrous metals.

Equipment

Improved Activity in East—Codes Cloud Outlook

Pittsburgh—Producers of heavy steel mill equipment in this district who booked several important orders last spring continue active in building on these orders. Current inquiry is quiet. The prevailing strong demand for rolls continues. Two roll producers here were reported last week to have sufficient business awaiting production to guarantee them good operations for at least three to four weeks. On the other hand, steel mills are buying few rolls to carry as spares. An improved volume of inquiry is noted from steel companies here for single machine tool units.

Chicago—Machinery and equipment sales still experience some hesitancy. Sellers attribute this to effects of the industrial recovery program which for the present is creating uncertainty regarding future costs and probable income. It is thought that this situation will clear following the inauguration of codes in some of the leading industries.

No improvement is noted in equipment orders from railroads whose purchases have been confined principally to necessary maintenance materials. Inland Steel Co. has placed a few additional tools for a maintenance shop, with more expected to be placed later. Purchases of such equipment as rolls and ingot molds by steel companies have been in keeping with improvements in plant operations but stocks have been increased only moderately.

New York—Inquiry for a list of 25 tools for a New York city department for installation in a Long Island City shop features the machinery and equipment market. Included are seven lathes, milling machine, shaper, sensitive drills and other tools. Mack truck builders also are buying some tools and are operating at a high rate. Japan has placed additional business, including a crankshaft lathe. Builders and dealers are figuring on a good volume of miscellaneous machinery and some spotty improvement in buying is noted.

Boston — Reed - Prentice Corp., Worcester, Mass., has booked six engine lathes for the navy department, two for the Boston yard shops. Textile mill equipment builders continue active, having booked some substantial business with additional volume pending. There is an active demand for some types of used machinery. Most machine plants are holding the increase of last month and a few are ahead of that period.

Busy on Beer Equipment

Harnischfeger Corp., Milwaukee, which recently resumed manufacture of special machines for pitching beer barrels, after a lapse of many years, has delivered more than 25 units to various large breweries in Milwaukee and other brewing centers and is working on orders for five more machines. The units weigh approximately four tons.

The John Illingsworth Steel Co., Carl W. Weihman and George R. Casey, receivers, Frankfort, Pa., has been granted a refund of $43,836.27 by the U. S. bureau of internal revenue for the year 1919 for overassessment of income tax.

Strip Steel
PRE-COATED WITH ZINC or COPPER
ECONOMICAL RUST RESISTANCE
SALES APPEALING APPEARANCE
THE BOND FOR FURTHER FINISHING
THOMAS Pre-Coatings as electrically applied by the Thomas Method are uniform, non-porous, crack and peel proof under deep stamping and forming operations—a safe specification always.
Zinc Coated Thomastrip provides either an appealing and durable rust-resistant finish, or a rust-resistant undercoat for paint and lacquer finishes.
Copper Coated Thomastrip provides the base for further plating, or a rust-resistant finish for inside use.
Send for test samples—specify gauge, width, temper and coat desired. A Thomas Representative will gladly analyze your requirements without obligation.
ELECTRO COATED
ThomaStrip
COLD ROLLED STRIP STEEL
The THOMAS STEEL CO.
WARREN OHIO
SPECIALIZED PRODUCTION
COLD ROLLED STRIP STEEL

Warehouse

New Quantity Differentials Applied—Demand Holds Well

Pittsburgh—Scully Steel Products Co. has announced revised base price classifications effective at its Pittsburgh warehouse as of Aug. 9. Base prices on 400 to 3999-pound lots are unchanged but new differentials for quantities over this base are unchanged. Lots under 400 pounds take 50 cents off, with lots 4000 to 7999 pounds, 15 cents off; 8000 to 14,999 pounds, 30 cents off; 15,000 to 39,999 pounds, 50 cents off; and 40,000 pounds and over 60 cents off. The base price of bars is unchanged at 2.60c, with plates and structural shapes 2.85c. Plain concrete bars are now quoted 2.75c, an advance of 15 cents, with cold-finished now 3.20c, an advance of 50 cents.

Cleveland—The market is quieter, though orders so far this month are slightly ahead of the comparable period in July. Demand for steel bars is considerably better than that for shapes and plates. Quantity differentials are being put in effect here this week.

New York—Warehouse volume is slightly heavier, demand being well spread. New quantity differentials became effective Aug. 9.

Chicago — Revisions of quantity differentials on hot-rolled steel products advances prices $3 to $6 a ton. Base prices apply on lots from 400 to 3999 pounds instead of on 400 to 999 pounds, as formerly. Blue annealed sheets have been advanced $2 a ton to 2.85c, while bolts, nuts, lag screws and bolt ends have been increased through reductions in discounts. Business continues active and sales recently have maintained the steady improvement of several months.

Boston—Cold-finished steel and most grades of sheets, blue annealed excepted, have been advanced $5 a ton. Toncan galvanized and galvannealed are unchanged. Orders are fewer but include some good tonnages. Sales are well up to the July average.

Philadelphia—Warehouse business is slower at unchanged prices.

Detroit—Leading Detroit jobbers last week adopted a revised schedule of quantity differentials, applying to existing unchanged base prices on important heavy lines of steel products, effective as of Aug. 9. Demand for steel from stock here is steady.

Cincinnati—New quantity differentials were made effective during the past week in warehouses here.

St. Louis—Business of iron and steel warehouses in August shows no shrinkage from the July average.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials, except reinforcing and Swedish bars)

STEEL BARS ☐

Baltimore*	2.45c
Boston††	2.50c
Buffalo	2.95c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.40c
Los Ang.	3.30c
New Orleans	2.65c
New York‡ (d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.60c
Portland	3.15c
San Fran.	3.15c
Seattle	3.15c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS ☐

Baltimore	2.35c
Boston††	2.70c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS ☐

Baltimore	2.35c-3.00c
Boston	3.10c-3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.00c-2.45c
Detroit	2.85c
Houston	3.00c
Los Ang. cl.	2.10c
New Orleans	2.75c
Los Ang., lcl	2.40c
New York	2.65c-3.10c
Phila.	2.62½c
Pittsburgh	2.75c
San Fran. cl.	2.00c
San Fran. lcl	2.40c
Seattle	3.15c
St. Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES ☐

Baltimore*	2.45c
Boston††	2.60c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	2.65c
Los Ang.	3.30c
New Orleans	3.50c
New York(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	3.15c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

PLATES ☐

Baltimore*	2.45c
Boston††	2.60c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼ in. and thicker	2.95c
Cleve., 3/16-in	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.30c
New Orleans	3.50c
New York (d)	3.30c
Philadelphia	2.45c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	2.80c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

NO. 10 BLUE ☐

Baltimore*	2.70c
Boston††	2.35c
Buffalo	3.10c
Chattanooga	3.44c
Chicago	2.85c
Cincinnati	3.05c
Cleveland	2.75c
Det., 8-10 ga.	2.90c
Houston	3.35c
Los Ang.	3.40c
New Orleans	3.25c
New York	3.00c
Portland	3.75c
Pitts.**	2.75c
San Fran.	3.33c
Seattle	3.75c
St. Louis	3.00c-3.15c
St. Paul	3.45c
Tulsa	3.70c

NO. 24 BLACK ☐

Balt.*†	3.25c
Boston††	3.45c
Buffalo	3.25c
Chattanooga	3.50c
Chicago	3.45c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.30c
Los Ang.	3.80c
New York	3.65c
Pitts.**	3.40c
Portland	4.50c
San Fran.	3.95c
Seattle	4.50c
St. Louis	3.70c
St. Paul	3.695c
Tulsa	4.75c

NO. 24 GAL. SHEETS ☐

Balt.*†	3.75c
Buffalo	4.00c
Boston††	4.00c
Chattanooga	3.95c
Chicago	4.00c-4.10c
Cincinnati	4.15c
Cleveland	3.85c
Detroit	3.85c
Houston	3.57c
Los Ang.	4.00c
New Orleans	4.25c
New York	4.00c
Pitts.**	3.75c-4.00c
Portland	5.00c
San Fran.	4.55c
Seattle	5.00c
St. Louis	4.25c
St. Paul	4.19c
Tulsa	5.10c

†BANDS ☐

Baltimore	2.75c
Boston††	3.00c
Buffalo	3.30c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	2.85c
Los Ang.	3.80c
New Orleans	3.00c
New York(d)	3.30c
Philadelphia	2.75c
Pittsburgh	2.95c
Portland	3.65c
San Fran.	3.15c
Seattle	3.65c
St. Paul	3.20c
Tulsa	3.45c
St. Louis	3.20c

†HOOPS ☐

Baltimore	2.65c
Boston	4.90c
Buffalo	3.55c
Chicago	3.50c
Cincinnati	3.75c
Det. No. 14 & lighter	3.65c
New York	3.30c
Philadelphia	3.00c
Pittsburgh	3.60c
Seattle	5.15c
St. Paul	3.75c

COLD FIN. STEEL ☐

Baltimore (c)	3.33c
Boston (g)	3.60c
Buffalo	3.00c
Chattanooga*	3.90c
Chicago	3.25c
Cincinnati	3.57c
Clevel'd, flats	3.40c
Do., rounds squares, hexagons	3.25c
Detroit	3.40c
Los Ang.	5.50c
New Orleans	4.25c
New York	3.79c
Philadelphia	3.35c
Pittsburgh	3.20c
Portland (f)	4.50c
San Fran.(d)	5.50c
Seattle (f)	4.50c
St. Paul	3.20c
St. Louis	3.36c
Tulsa	4.65c

COLD ROLL. STRIP ☐

Boston 0.100 in., 500 lb lots	5.20c
Buffalo	5.25c
Chicago (b)	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(a) Rounds, hex, only.
(b) Net base straightening, cutting boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
(f) Rounds only.
(g) Bessemer analysis extras included.

‡Domestic bars.
*Plus quan. extras.
**Under 25 bundles.
*†50 or more bundles.

†New extras apply.

††Base 40,000 lbs., extras on less.

Prices at Detroit, Cleveland, New York, Chicago, Pittsburgh Cincinnati, Chattanooga and St. Louis on heavier lines are subject to new quantity differentials:

399 pounds and less, up 50 cents; 400 to 3999 pounds, base; 4000 to 7999 pounds, 15 cents off; 8000 to 14,999 pounds, 30 cents off; 15,000 to 39,999 pounds, 50 cents off; 40,000 pounds and over, 60 cents off.

Pacific Coast

Sales Recede but Much Steel Is Involved in Future Projects—Prices Firm, and Some Are Advanced—Bids on Iron Pipe Comprise Large Total—State Work Promises Some Tonnage

San Francisco—(*By Air Mail*)—Bookings were not heavy the past week. Pacific coast shipyards are interested in the opening of bids Aug. 31 for a ship for Swayne & Hoyt, San Francisco, involving close to 4000 tons of plates and shapes. For the first time in several years plate prices are firm at 2.10c, having been advanced by all producers Aug. 3 from 1.75c, c.i.f.

Soule Steel Co. and Blue Diamond Co., were low bidders on 1174 tons of reinforcing bars for Los Angeles. Bids have been opened on 4300 tons, under three specifications, for Boulder dam. Out-of-stock prices in the San Francisco district remain unchanged at 2.05c, base, on carload lots.

Plate fabricators are interested in the Pine Canyon dam pipeline, involving 5200 tons, bids on which open Aug. 15. The only structural shape award of size went to the Schrader Iron Works and involves 250 tons for trusses for the United States forest service, San Francisco. Bids have been opened on 322 tons for highway work in Utah, on 160 tons for a subway at El Monte, Calif., for the Southern Pacific Co., and 100 tons for a post office at North Hollywood, Calif. Pending business calls for more than 7000 tons. Wide flange material holds at 2.20c, c.i.f., while standard shapes are quoted at 2.10c.

Ipamco Pipe Corp., Los Angeles, booked 167 tons of cast iron pipe for Los Angeles and will furnish foreign material. The price was .605c per foot on 6-inch Class B pipe, compared with .69c, the lowest price named by domestic makers. Oakland, Calif., will open bids Aug. 11 for from 1850 to 2150 tons of 4 to 8-inch pipe. Los Angeles took bids Aug. 7 on 150 tons for the county fair grounds. Bids were opened Aug. 7 for over 125 tons of ½ to 2-inch tubing for Boulder dam.

Bids have been taken on 180 tons of 14-gage black sheets for a pipe line for the metropolitan water district at Los Angeles.

Larger Tonnage at Seattle

Seattle—No important iron and steel tonnages were awarded in the Pacific Northwest this week but projects up for prompt decision are large.

Preliminary to active construction on the Coulee dam, for which the government has allocated $63,000,000, a railroad extension will be built to the site and a large steel bridge will be erected across the Columbia. The railroad project will cost $1,000,000. Officials of the Northern Pacific are in conference with reclamation bureau executives on this matter. The bridge project has not yet developed.

The week's awards included 175 tons of reinforcing bars for an addition to the Continental Can Co. plant at Seattle, divided between Northwest Steel Rolling Mill and Pacific Coast Steel Corp., Seattle.

Columbia Steel Co. was awarded 200 street car wheels by Seattle at $33.75 for untreated and $36.75 each for rim-toughened. General Cable Corp. will furnish Seattle three miles of trolley wire at $18.93 per cwt.

Tonnages pending include 600

(*Please turn to Page 70*)

Steel in Europe

Markets Show Better Tone; Export Demand Livelier

London — (*By Cable*) — Satisfaction is felt at the Middlesbrough pig iron position. Producers of semi-finished steel are operating at 80 per cent of capacity and demand for structural steel is better. Export trade of Scotland is moderate. Sheet outlook is encouraging although the Birmingham area is under holiday influence. Competition from Continental bars is strong. Exports of galvanized sheets are disappointing but tin plate is moving satisfactorily.

The Continent reports the market generally is quiet, with Japan, India and the Argentine markets inquiring more actively. Berlin reports German trade is improving and export demand for structurals is more active.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Aug. 10

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports	£ s d	Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	£ s d
PIG IRON				
Foundry, 2.50-3.00 Silicon	$13.13	2 18 6	$8.27	1 14 0
Basic bessemer	12.12	2 14 0*	7.30	1 10 0
Hematite, Phos. .03-.05	13.25	2 19 0	.....	.....
SEMIFINISHED STEEL				
Billets	$22.45	5 0 0	$11.44	2 7 0
Wire rods, No. 5 gage	33.68	7 10 0	21.90	4 10 0
FINISHED STEEL				
Standard rails	$34.80	7 15 0	$26.77	5 10 0
Merchant bars	1.33c	6 12 6	.66c	3 0 0
Structural shapes	1.48c	2 7 6	.61c	2 15 0
Plates, †¼ in. or 5 mm	1.65c	8 5 0	.86c	3 18 6
Sheets, black, 24 gage or 0.5 mm.	1.80c	9 0 0	1.27c	5 15 0
Sheets, gal., 24 gage, corr.	2.20c	11 0 0	1.60c	7 5 0
Bands and strips	1.55c	7 15 0	.83c	3 15 0
Plain wire, base	1.75c	8 15 0	1.18c	5 7 6
Galvanized wire, base	2.10c	10 10 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	2.40c	12 0 0	1.27c	5 15 0
Tin plate, box 108 lbs.	$ 3.87	0 17 3	.....	.....

British ferromanganese $68 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($45.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d	French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	$14.03	3 2 6*	$11.17	210	$11.40	300	$20.44	63
Basic bessemer pig iron	13.25	2 19 0(a)*	10.37	195	8.74	230	22.55	69.50
Furnace coke	2.97	13 3	6.38	120	4.18	110	6.25	19.25
Billets	22.45	5 0 0	21.55	405	16.72	440	31.31	96.50
Standard rails	1.65c	8 5 0	1.67c	697	1.87c	1,100	1.94c	132
Merchant bars	1.38c	6 17 6	1.34c	560	.91c	535	1.62c	110
Structural shapes	1.75c	8 15 0	1.32c	550	.91c	535	1.58c	107.50
Plates, †¼-in. or 5 mm	1.70c	8 10 0	1.63c	680	1.15c	675	1.87c	127
Sheets, black	2.00c	10 0 0§	2.04c	850‡	1.28c	750‡	2.12c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	2.50c	12 10 0	3.48c	1,450	2.47c	1,450	5.44c	370
Plain wire	1.75c	8 15 0	2.71c	1,130	2.21c	1,300	2.60c	177
Bands and strips	1.90c	9 10 0	1.49c	620	1.15c	675	1.87c	127

*Basic. †British ship-plates. Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price. British quotations are for basic open-hearth steel. Continental usually for basic-bessemer steel. a del. Middlesbrough. b Since January

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 9.00c, Conn., for copper

Sheets

Yellow brass (high)	14.75
Copper, hot rolled	17.12½
Lead sheets, cut to jobbers	8.25
Zinc sheets (100-lb. base)	9.00

Tubes and Pipes

Seamless yellow brass (high)	16.37½
Seamless copper	16.62½

Rods

Yellow brass (high, full turnings)	12.25
Naval brass	13.37½

Anodes

Copper, untrimmed	14.50

Wire

Yellow brass (high)	14.75

Old Metals

Dealers' buying prices, cents lb

No. 1 Composition Red Brass

New York	5.00 to 5.25
Chicago	4.75 to 5.00
Cleveland	5.75 to 6.00
St. Louis	4.50 to 4.75

Heavy Yellow Brass

New York	3.75 to 4.00

Heavy Copper and Wire

New York	6.75 to 7.00
Chicago, No. 1	6.37½ to 6.62½
Cleveland	6.00 to 6.50
St. Louis	5.50 to 6.00

Composition Brass Borings

New York	4.75 to 5.00

Yellow Brass Tubing

Cleveland	4.50 to 5.00

Light Copper

New York	5.50 to 5.75
Chicago	5.12½ to 5.37½
Cleveland	5.50 to 5.75
St. Louis	5.00

Light Brass

Chicago	3.00 to 3.25
Cleveland	3.50 to 4.00
St. Louis	2.75 to 3.00

Lead

New York	3.50 to 3.62½
Cleveland	3.00 to 3.50
Chicago	3.25 to 3.50
St. Louis	3.25 to 3.50

Zinc

New York	2.25 to 2.50
Cleveland	2.25 to 2.75
Chicago	2.50 to 2.75
St. Louis	2.75 to 3.00

Aluminum

Clippings, new, soft, Cleve.	13.00 to 14.50
Clippings, hard, Cleveland	9.00 to 10.00
Borings, Cleveland	5.00 to 6.00
Mixed cast, Cleveland	8.00 to 8.50
Mixed cast, St. Louis	8.00 to 8.50

Secondary Metals

Brass ingot, 85-5-5-5	9.00
Remelt aluminum No. 12	12.50 to 13.50

Metals

Prices Fairly Steady Despite Slow Demand—Interest Centers In Codes—Antimony Eases

New York—Demand for the nonferrous metals was quiet last week but prices in general retained a firm tone, antimony being an exception. The subject of trade practice codes again commanded chief attention.

Copper—Buying was in light volume but some sellers booked a few fair orders at 9.00c, Connecticut, for delivery into the fourth quarter. Resale copper continued available through the week at around 8.75c, Connecticut, for prompt delivery but this did not have a depressing influence on the market. Light sales also ruled in the foreign market at slightly lower prices.

Action still pends on a code for the copper industry. Custom smelters and smaller producers have been unable to agree with the large mine producers on a number of points and government aid probably will be required in their adjustment. No action has been taken on the code presented by the copper and brass product makers but most of these interests are operating under its provisions. The National Electrical Manufacturers code, which includes copper wire drawers, has been given the President's approval.

Zinc—Stocks were cut more than 14,000 tons in July, placing the industry statistically in the best position in several years. July shipments were the heaviest since late in 1929. The market retained a firm tone with higher prices regarded in prospect under the code which has been tentatively approved.

Lead—A moderate pickup in demand developed after the middle of the week, especially for September delivery. August requirements are well covered but 70 to 75 per cent of September needs must be filled. Sellers maintained a firm position. Rolled products have been moving better recently.

Antimony—Prices developed an easier tone due to slightly lower levels in China.

Tin—Light to fair sales of tin were made last week. Prices were fairly steady but slightly under the levels of the preceding week. Less violent fluctuations in sterling exchange aided trading. English tin sold at around ¾-cent under spot Straits.

Aluminum—Demand was quiet with prices showing little change.

Quicksilver Steady

New York—Quicksilver prices are unchanged in a quiet market. Small lots are quoted $64 to $65 a virgin flask of 76 pounds, and round lots may be had at slightly less.

Coke By-Products

Per Gallon Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.22
90 per cent benzol	0.22
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26

Per Pound at Producers' Plants in 250-Pound Drums

Phenol	0.153 to 0.173

Per Pound at Producers' Plants

Naphthalene flakes	4.75 to 5.75
Naphthalene balls	4.75 to 5.75

Per 100 Pounds Atlantic Seaboard

Sulphate of ammonia	$1.20

Canadian Coke Output Up

Toronto—Production of by-product and gas-house coke in Canada at 135,546 tons during June was slightly higher than the 134,275 tons of the previous month and 12 per cent over the 118,719 tons for June of a year ago. An iron blast furnace at Sydney, N. S., was blown in during June, necessitating an increase in coke production with the result that output in the eastern provinces rose to 30,846 tons from 27,141 tons.

Nonferrous Metal Prices of the Week, Cents a Pound

Spot unless otherwise specified

	Copper			Straits Tin New York		Lead	Lead East	Zinc	Aluminum	Antimony	Ingot
	Electro., del. Conn.	Lake, del. Midwest	Casting, refinery	Spot	Futures	N. Y.	St. L.	St. L.	98-99%	Spot, N. Y.	Nickel
Aug. 5	9.00	9.12½	8.75	44.80	45.10	4.50	4.35	5.00	*22.90	7.12½	35.00
Aug. 7	9.00	9.12½	8.75	44.60	44.90	4.50	4.35	5.00	*22.90	7.12½	35.00
Aug. 8	9.00	9.12½	8.75	44.60	44.90	4.50	4.35	5.00	*22.90	7.12½	35.00
Aug. 9	9.00	9.12½	8.75	44.70	45.00	4.50	4.35	5.00	*22.90	7.12½	35.00
Aug. 10	9.00	9.12½	8.75	44.85	45.15	4.50	4.35	5.00	*22.90	7.00	35.00
Aug. 11	9.00	9.12½	8.75	44.60	44.90	4.50	4.35	5.00	*22.90	7.00	35.00

*Nominal quotation. Market range 19.90c to 22.90c.

Here and There in Industry

YALE & TOWNE MFG. CO., Chrysler building, New York, has bought real estate, machinery, tools inventory, patents and goodwill of the Walker Vehicle Co. and the Automatic Transportation Co., both of Chicago, makers of industrial electric trucks and commercial electric street vehicles, which supplement lines already manufactured by the purchasing company. Manufacture will be continued of the complete lines at 101 West Eighty-seventh street, Chicago, with personnel unchanged under direction of F. H. Tinsley.

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Smillie Steel Products, manufacturer of steel plate and iron products, has established a plant at 10 Abell street, Toronto, Ont.

□ □ □

Wheeling Corrugating Co., Memphis, Tenn., a subsidiary of the Wheeling Steel Corp., Wheeling, W. Va., has leased a warehouse to care for increased business.

□ □ □

Allsteel Press Co., 12015 South Peoria street, Chicago, has sold a 200-ton straight-side, double-crank geared press of welded steel plate construction for export to Holland.

□ □ □

Whiting Corp., Harvey, Ill., has appointed C. F. Cate, 610 North Twelfth street, Albuquerque, N. Mex., its agent for Arizona. He will handle cranes, foundry, railroad and pulverized coal equipment and special machinery.

□ □ □

On page 57 of the June 19 issue it was stated that the Standard Tin Plate Co., Canonsburg, Pa., was operating six days weekly, 18 turns. This was in error; the company was operating 16 turns.

□ □ □

William M. Bailey Co., Pittsburgh, has taken a contract to rebuild one stove at the No. 2 furnace at the Steubenville, O., works of Wheeling Steel Corp., including an American open-joint checker and American steel bottom.

□ □ □

E. J. White Co., engineer and steel fabricator, Seattle, has moved its offices to 2945 First avenue South. Mr. White formerly was chief engineer and manager of the structural steel department of Hofius Steel & Equipment Co.

□ □ □

McClintic-Marshall Corp. and the Bethlehem Steel Co. have shipped from their plants at Pottstown and Steelton, Pa., 43 carloads of steel for the Golden Gate bridge at San Francisco. The shipment included all steel for the entire first tier of both legs of one tower. The steel goes by water from Philadelphia in the steamer PORTMAR.

□ □ □

Worthington Pump & Machinery Corp., 400 West Madison street, Chicago, has appointed Kroeschell Engineering Co., 2306 North Knox avenue, its authorized dealer in Chicago territory for its refrigeration equipment, including compressors and vacuum units.

□ □ □

H. A. Brassert & Co., Chicago, engineers and contractors, have sold to the Rust Furnace Co., Pittsburgh, for the Bethlehem Steel Co., Cambria works, an Askania automatic combustion control and to Inland Steel Co., Chicago, an Askania draft control for an open-hearth furnace.

□ □ □

Carboloy Co. Inc., Detroit, has announced a 15 per cent wage increase for all hourly employes, effective Aug. 1, and has signed the general NRA code. The increase was not necessary to bring the scale to the code minimum but is a gesture of active co-operation in the effort to aid industry.

□ □ □

Smith Steel Casting Co., Anderson, Ind., has purchased plant No. 1 of the Lavelle Foundry Co., Anderson, from Linfield Myers, receiver for that company, after having leased the property for three years. K. Smith is president of the Smith company.

□ □ □

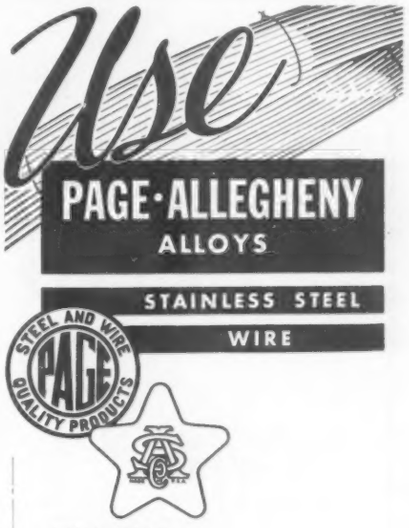
Sheffield Machine & Tool Co., Dayton, O., has moved into its new plant at East Third and June streets, adjacent to the plant of the City Machine & Tool Works, which recently acquired a substantial interest in the Sheffield company. No changes are made in factory management and the plants will be operated independently as in the past, though supplementary to each other.

□ □ □

Acheson Oildag Co., Port Huron, Mich., has made an advance of 5 per cent in salaries to all employes. Salaries paid by this company through depression years have at no time been below the 1929 level, in spite of a 10 per cent reduction in 1932. The present increase is in response to a desire to restore the entire 10 per cent as soon as possible. The NRA code affecting industrial workers has been signed by the company.

□ □ □

Lukenweld Inc., division of Lukens Steel Co., Coatesville, Pa., has been awarded a contract by Winton Engine Corp., Cleveland, for the manufacture in arc-welded rolled steel construction, of the complete engine structure for the 600-horsepower Winton engine which will power the new 110-mile per hour light-weight passenger train of the Union Pacific system. The welded parts consist of the engine frame, oil pan and twelve cylinder heads. The engine will be a V-type, twin-six unit, direct-coupled to a generator, which in turn will supply power to the driving motors. The highly-stressed engine frame will be constructed of a new high-strength alloy steel, welded by a technique designed to deposit weld metal with



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characteristics equal to the base metal. The entire frame will be subjected to a radiographic examination as an inspection check to insure quality of the welds.

□ □ □

Jay G. Stephens Corp. is now located at 2401 Koppers building, Pittsburgh. The company maintains its scrap yard in Dravosburg, Pa.

□ □ □

Struthers-Wells Co., Warren, Pa., manufacturer of chemical process equipment, has appointed Kerr Machinery Corp., Kerr building, Detroit, its exclusive representative in Michigan, exclusive of the northern peninsula, and the National Equipment Co., Salt Lake City, Utah, its representative in Utah, Nevada, Idaho, Montana and Wyoming west of Rock Springs.

Implement Exports Heavier

Farm implements and machinery to the value of $192,554 were exported from Canada during June. This represents an increase over the May total of $129,561, and the June, 1932 total of $173,527. Harvesters and binders numbered 115, with a total value of $22,083.

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Put Intrastate Switching Rates Up at Chicago

Advances of ½ to 1 cent a 100 pounds on intrastate freight shipments in Illinois and Indiana will result from a recent ruling of the interstate commerce commission. This order directs that railroads operating in the Chicago switching district, including those of Illinois and Indiana, charge interstate rates on hauls wholly within the district in Illinois and in Indiana, effective not later than Sept. 20. This will result in one level of switching rates regardless of whether the traffic moves interstate or intrastate. Interstate rates now are 3 cents a 100 pounds for one-line hauls, 3½ cents for two-line hauls, and 4 cents for multiple line hauls. Intrastate rates now are 2½ cents for one and two line hauls and 3 cents for three or more line hauls.

Pacific Coast Markets

(*Concluded from Page* 67)

tons of plates and 200 tons of shapes for a motorship for the Northland Transportation Co., Seattle, for which the shipping board has loaned $350,000; 500 tons of shapes for a state bridge in Clallam county, Washington, bid Aug. 29, and 430 tons for a Chelan country bridge, Washington, bids Aug. 14; 1112 tons 24 and 30-inch cast iron pipe for Denny Way, Seattle, contract awarded but awaiting RFC confirmation; 250 tons 10 and 18-inch cast iron pipe for McNeil Island, Wash., prison, bids Aug. 8; 310 tons 6, 10 and 18-inch cast iron pipe for state prison, Walla Walla, bids Aug. 8; 109 tons 6, 8 and 12-inch cast iron pipe for Sumner, Wash., bids Aug. 14. Tacoma has authorized a $13,000 main extension of 12-inch cast iron pipe.

The markets are extremely firm, plates having officially been advanced to 2.10c, on a parity with bars and shapes. Warehouse prices are unchanged but may be advanced at any time. The jobbing trade is fair, no features having developed.

The scrap market is listless, buyers showing little interest in higher prices. Two large steamers in California, with a total net tonnage of 11,000, were sold for scrapping to Japanese interests. The local turnover of scrap is small. Foundry operations are more active.

Is Awarded Rivet Bars

Pacific Coast Steel Corp., San Francisco, has been awarded 100,000 pounds of rivet steel bars for the Mare Island navy yard at 2.177c, delivered.

Construction and Enterprise

New England

WINSTED, CONN.—Strand Enamel Co., Torrington road, plans a 1-story plant 50 x 62 feet for the manufacture of enameled wire and insulation for copper wire, to cost $40,000.

SACO, ME.—Saco Lowell Shops, Smith street, Biddeford, Me., will build a foundry to produce castings for its textile machine shop, to cost about $30,000.

SALEM, MASS.—City plans addition of pumping machinery for the municipal waterworks and filtration plant, to cost over $17,500. Metcalf & Eddy, 1300 Statler building, Boston, are engineers.

New York

NEW YORK—Steel Metal Specialty Co. Inc. has been incorporated with 200 shares no par value to manufacture metal products, by Michael E. Rosenstein, 570 Seventh avenue, New York.

NEW YORK—Heer Metal Works Inc. has been incorporated with $10,000 capital to manufacture metal products, by Hans Heer, 2047 Second avenue, Astoria, L. I., and associates.

NEW YORK—Goldstein Iron Works Inc. has been incorporated with $10,000 capital to manufacture iron, steel and metal products, by Sydney Fertig, 205 West Thirty-fourth street, New York.

NEW YORK — Martin Machinery Corp. has been incorporated with $100,000 capital, to manufacture machinery and equipment, by James E. Bennett Jr., 541 West 141st street, New York, and associates.

New Jersey

BORDENTOWN, N. J.—City is having a survey made to determine cost of an electric light and power plant, including a 600-horsepower diesel engine, 3-phase generators and accessories, to cost about $75,000. C. Rodgers, 105 Mary street, Bordentown, N. J., is making the survey.

BOUND BROOK, N. J.—Midland Tube & Pipe Co., J. A. Miller in charge, 32 Broadway, New York, will build a 2-story addition and remodel its plant at a cost of about $40,000, with equipment.

Pennsylvania

BEAVER, PA.—Pittsburgh Coal Co., Oliver building, Pittsburgh, plans to install electric power equipment, hoisting and conveying machinery in its proposed tipple and coal storage plant on Beaver creek, the entire project to cost about $150,000. Aaron Westlake is secretary.

BRADFORD, PA.—Sloan & Zook Refining Co., Bradford, Pa., plans additions to its refinery, including a still of 1500 gallons capacity, to cost $35,000.

PHILADELPHIA—Turner & Harrison Pin Co. has let a contract for a plant addition to Barclay, White & Co., Roosevelt boulevard and Adams avenue, to cost $28,000 with equipment.

Ohio

ALLIANCE, O.—City plans construction of an electric power plant to cost about $28,500.

BEDFORD, O.—City has received a survey of waterworks possibilities by G. A. Reese, engineer, Clark building, Canton, O., including elevated steel tank, filtration and softening plant and accessories. Cost is estimated at $156,000.

CINCINNATI—Cincinnati Sheet Metal & Roofing Co., 226 East Front street, has let a general contract for an addition 88 x 224 feet to M. J. Roche, 519 Main street, to cost about $28,000.

COLUMBUS, O.—Plant of the Randolph Iron & Metal Co. has suffered damage by fire to the extent of about $2500.

KENTON, O.—City council plans construction of a municipal electric light and power plant to cost $500,000, with equipment. H. P. Jones, Second National Bank building, Toledo, O., is consulting engineer.

WELLSVILLE, O.—City is considering a preliminary survey for a waterworks plant, including filtration, a gravity system, meters and other accessories, to cost about $200,000. Morris Knowles Engineering Co., Westinghouse building, Pittsburgh, is engineer.

WILMINGTON, O. — City council plans construction of pumping machinery and other equipment in the new sewage disposal works. The entire project is estimated to cost $250,000.

Michigan

DETROIT—Cadillac Brewing Co., 884 Penobscot building, plans a 10-story brewery on a triangular site 197 x 307 x 351 feet, to cost $400,000.

DETROIT—Harley & Ellington, architects, Detroit, are completing plans for a power plant and office building to be erected for the Goebel Brewing Co., Detroit.

DETROIT—Midwest Iron & Metal Co., 3315 Barlum Tower, has been incorporated with $5000 capital to prepare and deal in steel and iron scrap, by Samuel Richman, 3345 Richton avenue, Detroit.

GRAND RAPIDS, MICH.—American Humidaire Co., care G. R. Clinic, Wealthy and Plymouth streets, Grand Rapids, has been incorporated with 104 shares no par value to manufacture air-conditioning appliances and systems, by Dr. Ferris N. Smith, Grand Rapids.

GRAND RAPIDS, MICH.—Pierre Lindhout, architect, Grand Rapids, is taking preliminary bids for construction of a boiler and power plant for the W. B. Jarvis Mfg. Co., Grand Rapids, Mich., to cost about $15,000.

JACKSON, MICH.—Engineering department of the city is completing preliminary plans for construction of a water system to cost about $225,000.

KALAMAZOO, MICH.—Fuller Mfg. Co. has been incorporated with 250 shares no par value and $250,000 capital to manufacture motor transmissions, by J. Seton Gray, 1820 North Seventieth street, Wauwatosa, Wis.

MANISTEE, MICH.—Charles Anderson, Manistee, Mich., has been awarded a general contract for alterations to the brewery plant of the Manistee Brewing Co.

MENOMINEE, MICH.—Prescott Co., iron founder, has recalled part of its foundry force and has resumed operations after being idle since March. Curry S. Prescott is president. Production will be castings for its own use in the manufacture of machinery.

PONTIAC, MICH.—Parsons & Lamb Mfg. Co. Inc. has been incorporated with $50,000 capital to manufacture machinery, by John H. Parsons, Bloomfield Hills, Pontiac, Mich.

Indiana

FORT WAYNE, IND. — Centlivre Brewing Co. has plans by R. W. Moland, Medical Arts building, for an addition to its brewery and boiler room, improvements to cost about $32,000.

MISHAWAKA, IND.—Paul Jones Inc. has been incorporated with 100 shares no par value to manufacture steel toys and other metal products, by Paul Jones Jr., L. H. Jones and H. L. Harmon.

SOUTH BEND, IND—Sibley Machine & Foundry Corp. has been incorporated with $100,000 capital to engage in general foundry and machine shop business, by Bernard J. Voll and A. G. Graham.

Illinois

CHICAGO—Austin Smelting & Refining Co., 42 West Austin avenue, has been incorporated with 50 shares no par value to deal in metals and metal products, by Tarnopol & Flamm, 134 North LaSalle street, Chicago.

CHICACO—Liquid Meter & Register Co., 844 West Jackson boulevard, has been incorporated with 300 shares no par value to manufacture liquid meters and registers, by Charles Vlach, 155 North Clark street.

CHICAGO—Clearing Machinery Corp., 29 South LaSalle street, suite 901, has been incorporated with 200 shares no par value to manufacture machinery, by Rathje, Weseman, Benckley & Barnard, 29 South LaSalle street, Chicago.

CHICAGO—Cooke Iron & Metal Co. Inc., 111 West Washington street, has been incorporated with 100 shares no par value to conduct a scrap metal and waste business by Nathan Shavin, 111 West Washington street, Chicago, and associates.

FREEPORT, ILL.—George & Mathias Schmich Estates, 1032 South Galena avenue, plans electric power equipment during expansion and improvement of its brewery, the entire program to cost $200,000. Fridstein Engineering Co., 229 North LaSalle street, Chicago, is engineer.

GALESBURG, ILL.—Galesburg Fur-

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LATROBE, PA.

nace & Foundry Co., 557 South Cherry street, has been incorporated with 100 shares no par value to manufacture furnaces, paper balers, broomcorn scrapers and other devices, by F. Fred O'Brien, 451 Bond building, Galesburg, Ill.

GRANITE CITY, ILL.—City council is making a preliminary survey for a municipal electric light and power plant to cost $750,000, and a waterworks plant to cost $1,000,000. Caldwell Engineering Co., Jacksonville, Ill., is engineer.

GREENVILLE, ILL.—City, L. Lloyd, mayor, plans a municipal electric light and power plant to cost $140,000. Application has been made for a Reconstruction Finance Corp. loan. W. A. Fuller Co., 2916 Shenandoah avenue, St. Louis, is consulting engineer.

PEORIA, ILL.—Hiram Walker & Sons Inc., Union Guardian building, Detroit, a subsidiary of Hiram Walker-Gooderham & Worts Ltd., Walkerville, Ont., plans erection of a new distillery on a 15-acre tract here, to cost $1,000,000, including power plant.

Southern States

BIRMINGHAM, ALA.—Southern Car & Mfg. Co. has met a loss by fire of about $12,000 in its core department.

MONTGOMERY, ALA.—City is having plans prepared for improvements to the municipal waterworks plant, estimated to cost about $70,000.

GREENSBURG, KY.—City council plans installation of high and low lift pumping machinery and accessory equipment, a 17,500-gallon elevated steel tank on steel tower and other mechanical equipment in extension of the waterworks plant. H. K. Bell, McClelland building, Lexington, Ky., is consulting engineer.

BRADENTOWN, FLA.—City council plans installation of a steam-electric power equipment in the municipal electric light and power plant and a new distribution system. E. V. Camp, Atlanta, Ga., is consulting engineer.

PAHOKEE, FLA.—City plans construction of a municipal waterworks plant, a loan of $100,000 having been approved. G. A. Main, Daytona Beach, Fla., is engineer.

HOPEVILLE, GA.—City, care E. L. Johnson, city hall, is having plans prepared for a new waterworks and power plant estimated to cost $150,000.

MOULTRIE, GA.—City council has voted to undertake a public improvement program including $30,000 for expansion of the waterworks system. Total included in the general improvements is $130,000.

THOMASVILLE, GA.—City, care D. R. Pringle, is having plans prepared for a new waterworks plant to cost $100,000, on a federal loan. Weideman & Singleton, Candler building, Atlanta, Ga., are engineers.

Missouri

BRENTWOOD, MO.—City plans construction of a municipal electric light and power plant to cost $150,000 and a waterworks plant to cost $45,000 if a Reconstruction Finance Corp. loan is granted.

PACIFIC, MO.—City plans construction of a municipal electric light and power plant to cost $80,000 and waterworks improvements to cost $20,000, if Reconstruction Finance Corp. loan is approved.

ST. LOUIS—Grone Brewery Co., care F. J. Wade Jr. & Co., 318 North Eighth street, will remodel a brewery at Twenty-second street and Clark avenue, at a cost of $150,000 to $200,000.

Arkansas

PARAGOULD, ARK.—City has made application to Reconstruction Finance Corp. for a loan of $165,000 for a municipal electric light and power plant. W. A. Fuller Co., 2916 Shenandoah avenue, St. Louis, is consulting engineer.

Texas

DALHART, TEX.—City has made application to the Reconstruction Finance Corp. for a loan of $328,000 for construction of a waterworks system.

EL PASO, TEX.—Alamo Iron & Salvage Co. has been incorporated with $1500 capital to deal in iron and steel scrap, by John K. Fitz and Roy W. Carey.

HUMBLE TEX.—City is having plans prepared for a waterworks plant, including a 100,000-gallon elevated steel tank on a 100-foot tower, duplicate pumping equipment and accessories. Garrett Engineering Co., Box 1726, Houston, Tex., is engineer.

MISSION, TEX.—City, care J. J. Frost, mayor, has applied for a loan from the Reconstruction Finance Corp. of $225,000 for construction of a municipal electric light and power plant.

Wisconsin

BELOIT, WIS.—City council plans a new municipal electric light and power plant for which $133,000 worth of bonds will be sold. Kenneth R. Brown, 1680 Harlem boulevard, Rockford, Ill., is engineer.

MADISON, WIS.—City plans installation of additional pumping equipment in the municipal waterworks plant, to cost about $25,000.

Minnesota

MINNEAPOLIS—Hiawatha Brewing Co., H. Knudson, president, 4000 Hiawatha avenue, will build a 1-story bottling plant 40 x 200 feet and remodel its other brewery buildings, total cost to be about $300,000.

Iowa

FREDERIKA, IOWA—City plans to construct a municipal electric light and power plant to cost about $50,000.

WASHINGTON, IOWA—A. N. Holloway, mayor, has retained E. T. Archer & Co., 609 New England building, Kansas City, Mo., to make preliminary plans for a municipal electric light and power plant.

Montana

FT. BENTON, MONT.—Bids have been taken for a pumping and filtration plant to cost $40,000. F. F. Palmer is consulting engineer.

Pacific Coast

CHOWCHILLA, CALIF. — Danish Creamery Association plans to build a boiler house in its new plant, to cost $55,000. W. D. Coates Jr., Rowell building, Fresno, Calif., is architect.

HAYWARD, CALIF.—Council is considering construction of a municipal electric light and power plant to cost $240,000. Edward K. Hussey, Syndicate building, Oakland, Calif., is consulting engineer.

OREGON CITY, OREG.—Parker-Schram Co. has started its general contract for improvement of the Willamette river locks for the United States engineers, at a cost of $75,000, including deepening the lock, construction of lower gate, new floor, miter cell and other details.

PORTLAND, OREG. — Application has been made for a government loan of $3,313,000 to finance a proposed power plant at the Bear Creek dam project.

SPOKANE — Spokane Brewing & Malting Co. plans a bond issue of $150,000 to finance a program of plant extension.

SPOKANE — American Machine Works, 1015 Broadway, has let a contract for a 1-story machine shop and equipment to C. F. Nygren, 831 East Twenty-second street, at about $28,000.

ST. HELENS, OREG.—Floyd W. Allen, engineer, Portland, has been employed to make a survey for replacements and additions to the water system. Application will be made for federal loan backed by public utility bonds.

New Trade Publications

CAST IRON PIPE—Central Foundry Co., 420 Lexington avenue, New York, is distributing a booklet featuring its universal cast iron pipe and fittings. Illustrations show the pipe and methods of laying.

MELTING—Whiting Corp., Harvey, Ill., has published a booklet, "Modern Melting Methods," in which information is presented on melting of metal in the cupola, the powdered coal fired rotary type furnace, the converter, and the powdered coal fired air furnace. Information on the mechanical charging of cupolas is included.

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